The influence of mathematical basic concept of materials based on internalization of Islamic values against religious attitude

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Abstract. This study aims to find out the characteristics of basic mathematics concept teaching materials based on internalization of Islamic values, and to improve students’ religious attitudes through lectures using basic mathematics concept teaching materials based on internalizing Islamic values. The research method used is research development. Data collection techniques used were non-test techniques in the form of questionnaires. Analysis of the data used includes the validity of teaching materials analysis, practicality analysis of teaching materials, effectiveness analysis of teaching materials, descriptive statistics, and Gain normalization test. Learning using basic mathematics concept teaching materials based on internalizing Islamic values can improve students’ religious attitudes shown from the results of the initial questionnaire given an average score of 70.22% while the final questionnaire provided an average score of 87.32%. An increase of 0.58 in the medium category based on the normalized gain test. From the results of the study, it is expected that the existing religious attitudes are more explored through learning and habituation. Because the lecturer is only a facilitator, certainly in improving religious attitudes the teacher is not centered, but it must be student centered.

1. Introduction

"Character education is often interpreted as value education, character education, moral education, and character education which aims to develop the ability of students or children in assessing and giving good and bad decisions about something" [1]. Character education that is being promoted in the current curriculum certainly needs to be supported in teaching and learning activities in schools. If the learning school has carried out character education, it would be better if in the world of lectures as further education the school also develops character education. However, this is rarely the case since the lecturer is limited to teaching but not to educate as the teacher does. Therefore, it should be noted if in lectures continue to implement character education. Once the importance of character education is called moral character as the expression of the character Billy Graham states "When you lose wealth, you don't lose anything. When you lose health, you lose something. When you lose your character, you lose everything” [2]. From this opinion, it is clear that character is everything. Therefore, in various environments the characters remain priority. One of the characters that must be developed is religious attitude.

Religious is the value of character in relation to God, it shows that the thoughts, words, and actions of a person who is strived for are always based on divine values and / or religious teachings [2]. In this
In this case, religion includes the totality of human behaviour in daily life that is based on faith in God, so that all of his behaviour is based on faith and will form a "moral character".

Thus, it becomes clear that religious values are character forming values that are very important. Humans with character are religious humans. Therefore, religious attitudes need to be improved in various aspects of life, including in lectures. Within the campus environment, religious attitudes can be developed with a variety of strategies to instil these religious attitudes. As where [3] strategies that can be curved to instil and develop religious attitudes include 1) the development of religious culture routinely in learning activities. Islamic culture including prayer movement in congregation, thaharoh movement, internalization of Islam, etc. 2) create an educational institution environment that supports and can be a laboratory for the delivery of religious education. 3) religious education is not only formally delivered in learning with religious subject matter, however, it can be done outside the learning process. 4) creating a religious situation or situation. 5) provide opportunities for students to express themselves, foster talents, interests, and creativity in religious education, skills and arts. 6) holding various kinds of competitions about religious knowledge.

The indicators of religiosity in this study can be seen from several things including 1) students implementing and implementing religious teachings such as prayer, satisfaction, etc. 2) not doing things that are forbidden by religion such as drinking alcohol, drugs, adultery, etc. 3) can form religious behaviour in lectures such as starting with basamalah, saying greetings etc., 4) doing good fellow friends, 5) respecting older people such as lecturers, mothers, fathers, 6) able to follow lectures in accordance with Islamic culture.

The basic concept of elementary school mathematics is one of the PGSD courses that contains numbers, basic concepts of arithmetic, geometry, mathematical logic, sets, linear equations and linear inequalities, relations and functions as well as graphs of functions at the Basic Education (SD / MI) level. Internalization of Islamic values must also be carried out in the delivery of this course. However, the teaching materials used in this course do not contain internalization of Islamic values.

Religious attitudes also become important and automatic characters that must be spawned from ongoing lectures. Mathematics and Islam are not two different things. However, mathematics and Islam are two things that are integrated together. In the teachings of Islam, very many contain the concept of numbers. Such as prayer notes, calculation of zakat, inheritance (fareidl) and so on. In mathematics also contains Islamic values. For example, the concept of mathematical logic turns out to be contained in Surah Al-Ashr and others. Therefore, it is very logical if mathematics learning is associated with Islamic values. This is in line with what Abdussakir [4] said that the application of the mathematical affective domain requires internalization of values to students including the values of faith and goodness through the strategy of internalizing Islamic values.

Based on observations and interviews with PGSD semester 1 students about religious attitudes, they stated that there are still many mathematical concepts they know beforehand that need to be addressed. Religious attitudes in students need to be improved. Based on observations, it appears there are students who are not greeting when entering the room, starting lectures not with Basmalah. When prayer time arrives, students have not rushed to the mosque immediately and are still slacking off to pray. Which of these things are some examples of indicators of religious attitudes that are obedient attitudes and behaviours in carrying out the teachings of their religion, tolerant of the implementation of other religious worship, and living in harmony with followers of other religions. Even though the subject of basic mathematical concepts is not religious education but it is a science that is a gift and is sourced from Allah SWT, and if the lectures have internalized Islamic values it is expected to be able to influence the religious attitude of students to be better.

Teaching materials have an important role in the curriculum that must be prepared so that the implementation of learning can achieve the expected goals. Teaching materials which were previously still general in nature, only lead to discussion of the material. Not yet presented with the internalization of Islamic values as presented related Al Qur'an verses before the discussion of the material and explained its relevance and application. Therefore, teaching materials which contain internalization of
Islamic values are needed. In elementary mathematics courses, students are expected to be able to improve the religious attitude of students as an influence.

Al-Qur'an as a source of Islamic values which contains various sciences including mathematics. Teaching material developed will be associated with the Qur'an which is associated with mathematical concepts. In order to achieve these objectives, the ability and creativity of lecturers is needed in selecting and designing tailored teaching materials, so that students will more easily understand teaching material. The development of teaching materials for elementary mathematics concepts by internalizing Islamic values can improve students' religious attitudes.

Lectures will run smoothly, of course teaching materials are needed as a reference. However, teaching materials for elementary mathematics concepts that are circulating and already exist still present only mathematical concepts. Teaching materials that are integrated with Islamic values are not yet available in the market. Therefore, it is necessary to develop teaching materials for elementary mathematics concepts based on internalizing Islamic values. Based on this background, this research was carried out by developing teaching materials on the basic concepts of mathematics in the context of Islamic internalization to improve the religious attitude of mathematics. Based on the description above, the main problems in this research that are formulated are: 1) What are the characteristics of teaching materials in the basic concepts of mathematics based on the internalization of Islamic values? and 2) Does learning using basic mathematics concept teaching materials based on internalizing Islamic values can improve students' religious attitudes?

2. Method

The research conducted is using the model of Research and Development (R&D). Development research method is a research method used to produce certain products, and test the effectiveness of certain products. In this research, a basic mathematics basic concept teaching material will be developed based on the internalization of Islamic values, so that it can improve students' religious attitudes.

Based on the opinion of [5], this study the stages carried out were 1) Preliminary Study. At this stage, field studies and literature studies are conducted. The field study was conducted to find out the problem of religious attitudes that occur in lecturing elementary mathematics concepts. Collection of field data relating to teaching materials, students' initial responses to the course. Literature study is conducted to find out the right solution of the problems obtained through field studies. 2) Development stage, in the literature study conducted, a solution will be formulated to be developed, namely teaching materials for elementary mathematics concepts by internalizing Islamic values. After being developed as needed, the teaching materials are tested for validity by experts, using the validation sheet of teaching materials with predetermined criteria. After it is evaluated and revised, teaching materials are then tested on a small or limited scale. After that it is re-evaluated and refined, the last stage of this development is a hypothetical model or product of teaching materials as a temporary solution to the existing problem. 3) Validation Phase, at this stage consists of the application of teaching materials for elementary mathematics concepts by internalizing broad-scale Islamic values. The application is obtained that there is an increase in religious attitude with teaching materials in elementary mathematics concepts by internalizing Islamic values. So, the applied product is already the final product of this research development.

Analysis of the data used in this research is descriptive statistics that calculate the results of the religious attitude questionnaire from the beginning or end, calculating the average grade, calculating the middle value (median), calculating the value of many frequency (mode), and calculating completeness. While the analysis of increasing religious attitudes is calculated using the normalized gain test. Valid and practical data analysis is also used in this study. The validator will provide the results of an assessment of teaching materials consisting of several categories, according to the rubric of each indicator that the researcher has made. In the validation sheet contains data that is the evaluation of each validator of teaching materials analysed based on the average score. Student response questionnaire data were analysed by finding the average score of student choice. Student response criteria are based on the average student choice on the questionnaire sheet, with each statement given a choice of scores 1, 2, 3, 4 or 5.
3. Result and Discussion
Teaching materials are validated by the validator (expert / expert). The validation of selected experts is from the lecturers. The three experts were chosen because they are experts in their respective fields which are strongly related to the development of teaching materials to be developed. The expert consists of lecturers of Islamic Education who can validate by giving advice related to Islamic values which are in teaching materials. Then lecturers supporting basic mathematical concepts in the PGSD study program are expected to be able to validate and provide suggestions related to mathematical concepts. And experts who are experienced in making teaching materials with some research made on teaching materials in the form of books, comics, and other teaching material innovations. So that it is expected to provide input or suggestions related to how good teaching materials and according to the rules that will be developed in this study.

Suggestions and comments from the validator serve as a reference in improving teaching materials being developed. From the results of the validator assessment the average validation results obtained a score of 3.87 means that it is included in both criteria. While the conclusion of each validator is almost the same, namely valid with revisions according to suggestions and comments. So that the teaching material developed is valid and has been improved according to the validator's advice.

Limited trials or small groups conducted by involving 3 students in elementary mathematics basic concepts courses in the PGSD study program. This limited trial was only conducted at a few meetings. Students accept learning by using teaching materials that are developed. After that, they were given questionnaires for student responses related to learning. And the comments sheet related to the teaching material developed. The results of the questionnaire responses of students in this limited trial obtained a score of 4.63 on the criteria very well. Suggestions and comments from the results of the limited scale trial are still used as improvements before being tested on a large scale. Thus, on a limited scale, teaching materials can be used well. So, it can be used on a large group scale.

Based on the results of expert validation and the results of limited scale trials, the teaching material developed was revised again and made improvements according to suggestions and input. After repairs, the next process is to do a wide-scale trial. This trial was conducted in semester 1 of elementary mathematics lectures. This trial was conducted in several meetings so that several chapters on teaching material were delivered to the lecture to the maximum. At the beginning and end of the lecture the religious attitude questionnaire was given. Meanwhile, to meet the practicality criteria of teaching materials, researchers distributed student response questionnaires related to learning with basic mathematics concepts teaching materials with internalization of Islamic values. The results of the student response questionnaire reached an average score of 4.51 and included in the excellent criteria. While the average religious attitude questionnaire obtained a score of 3.49. The results of the religious attitude questionnaire given to students were then tested by descriptive statistics to determine the average, median, mode and variance values of the data distribution obtained.

Based on the results of the analysis obtained results on high criteria because the questionnaire uses a Likert scale of 1 to 4 and obtained figures of 3.49 in the high category. This shows the religious attitude after lectures using teaching materials of basic mathematical concepts with the internalization of Islamic values which gives a good influence on the religious attitude of students is shown by the results of filling out the questionnaire given at the end of the lecture all the data show high criteria. While the data variance obtained 0.12 shows that the data are spread evenly and there is no gap that is too far away. meaning that the influence is felt by all students without exception.

This teaching material has different characteristics from other teaching materials. Namely the internalization of Islamic values. In each chapter in the teaching material included pieces of Al Qur'an verses related to the material and associated with the material. The link is seen in terms of sociological and philosophical. There is a moral value that is conveyed. Islamic-based mathematics teaching materials have also been developed but at the school level as Kurniati [6] which tries to offer ways of learning mathematics integrated with Islam to instil Islamic values and research also conducted by Nihayati [7] which tries to integrate values the value of Islam through the learning of sets.
Al-Qur'an as a way of life of Muslims, certainly becomes a guide for Muslims. In the Qur'an all science and technology are contained, but not many people know about it. Therefore, this teaching material presents the relationship of mathematical concepts to the Qur'anic verses. With the development of this teaching material becomes the best reference and reference material in conducting lectures with Islamic culture.

Examples given in the teaching materials of basic mathematical concepts based on internalization of Islamic values are included in the chapter on round and fraction operation techniques. There is a lot in the Qur'an that discusses the operation of numbers including in the 25th verse of Al Kahf which means "And they lived in their cave three hundred years and added nine (more)". And in the letter Al Ankabuut verse 14, which means "And verily We have sent Noah to his people, so he lived among them a thousand years less fifty years. So, they were hit by a great flood, and they are wrongdoers."

In the first verse, to mention 309, the Qur'an uses 300 + 9 and in the second verse, to mention 950, the Qur'an uses 1000 - 50. The two verses show that the Qur'an speaks of addition operations and subtraction operations. In QS 18:25 and QS 29:14, the Qur'an has talked about mathematics. The mathematical concepts mentioned in the two verses are numbers, i.e. numbers 300, 9, 1000, and 50. There are addition operations, namely 300 + 9; and reduction operations, i.e. 1000 - 50.

The meaning behind these 2 verses is that every Muslim needs to understand about numbers and number operations. How could a Muslim know that the prophet Noah lived with his people for 950 years, if he could not count 1000 - 50. How could a Muslim know that Ashhabul Kahfi lived in a cave for 309 years, if he could not count 300 + 9. Back QS 29:14 and QS 18:25, actually there are important secrets related to computational techniques. Mathematically 950 = 1000 - 50 And 309 = 300 + 9. The similarity is not only to be recognized and accepted as such, but it needs to be examined the secrets contained therein. Besides the material connection, teaching materials are also endeavoured to be able to provide a moral message in implementing internalization of Islamic values in learning so that it can influence religious attitudes to be better.

It is hoped that this teaching material will enable students to have strong faith, because the mathematical concepts learned and scientifically proven and implicit in religious teachings that they believe will make students have guidelines and instructions in their lives so as to produce behaviour that is morally commendable as similar research is conducted by Hanif et [8] in the field of science.

This is also reinforced by the statement that the implementation of the level of understanding of the Qur'an is able to increase the effectiveness of learning [9]. Learning outcomes on aspects of knowledge, good attitude and skills show the effectiveness of the use of teaching materials in an effort to align academic ability with the religious values desired by the curriculum. In line with the opinion of Purwaningrum [9] which states that the integration of religion and science into a new paradigm of scientific education models will be able to deliver its graduates to have more complete knowledge, personality, and insights that have the ability of IMTAQ (faith and taqwa) as well as science and technology (science and technology).

A supportive learning atmosphere is very much needed in learning [10]. Therefore, in lectures an Islamic atmosphere is formed in accordance with the developed teaching material. Namely learning is done with teaching materials based on the internalization of Islamic values. In learning, the lecturer conveys concepts through moral messages or links to verses of the Qur'an. This makes students better understand the actual concepts.

In measuring the increase in religious attitudes using the gain test of the questionnaire given to respondents at the beginning of the lecture and the questionnaire given at the end of the lecture. Indicators on religious attitudes consist of 1) students implementing and implementing religious teachings such as prayer, satisfaction, etc. 2) not doing things that are forbidden by religion such as drinking alcohol, drugs, adultery etc., 3) doing good among friends, 5) respecting people older people such as lecturers, mothers, fathers, and 6) are able to attend lectures that are in accordance with Islamic culture. The percentage of each indicator from the results of the religious attitude questionnaire given to students is presented in Table 1. below.
Table 1. Questionnaire Percentage of Religious Attitudes

| No | Indicator                                                                 | Pretest (%) | Posttest (%) |
|----|---------------------------------------------------------------------------|-------------|--------------|
| 1  | Students implement and practice religious teachings.                      | 64.77%      | 87.21%       |
| 2  | Students do not do things that are prohibited from religion                | 70.61%      | 91.12%       |
| 3  | Do good friends                                                           | 70.39%      | 85.09%       |
| 4  | Respect for older people such as lecturers, mothers, fathers.             | 68.09%      | 85.31%       |
| 5  | Able to attend lectures that are in accordance with Islamic culture.      | 71.79%      | 87.89%       |
|    | **Average score**                                                         | **70.22%**  | **87.32%**   |
|    | Criteria                                                                  | medium      | Excellent    |

Based on Table 1 above, it can be seen that at the beginning of the lecture students were able to attend lectures that were in accordance with Islamic culture up to 71.79%. This shows that religious attitude has actually been formed in students. So that the lecture activities are directed and increased again. While based on the questionnaire given at the end of the lecture, the highest indicator was that students did not do things that were forbidden by religion, which reached 91.12%. If calculated with the normalized gain test a score of 0.58 is obtained where this number is in the medium category. Although the increase that occurred is still in the medium category, but it is quite proud because there is a fairly high increase. That is an increase from 70.22% to 87.32%.

Religious attitude is fundamental to each individual. The average percentage at the beginning indicates that most students come from religious backgrounds. This is very beneficial for the university, in forming an Islamic generation and will be even easier in the application of Islamic culture. Why is that? Because the constraints during the implementation of religious planting are derived from the awareness and character of each individual, individuals who already have a good religious character, it will be easily inculcated religious character, but if students are from the beginning the religious character is not good, then this will be an obstacle for educators in implementing religious value investment [12].

Thus, the increase in religious attitudes that occur also influenced by teaching materials used in lecturing the basic concepts of elementary mathematics based on the internalization of Islamic values. In its application, the lecturer accustoms Islamic culture such as praying before lectures, Islamic dress and polite during lectures, linking material with verses of the Qur'an and so forth. Increasing religious attitudes can be more clearly seen in the graph below.

![Fig. 1. Questionnaire Percentage of Religious Attitudes](image)

An increase in religious attitude shows that whatever is packaged in learning will have a great effect on student attitudes. If we lead to religious attitudes it will have an effect even if the effect is very small.
For example, if we want to direct the attitude of nationalism to learning, then the attitude of nationalism to students will have an effect. Thus, if you want religious attitudes to be further enhanced, learning should promote religious atmosphere and Islamic culture and be able to apply religious attitudes to daily life so as to form learners who have better personalities [13].

4. Conclusion
Teaching materials for basic mathematical concepts based on internalizing Islamic values are teaching materials that are indispensable for lecturers and students. Teaching material developed contains Al Qur’an with material mathematical concepts by giving related moral messages. Teaching materials have been tested for validity and practicality based on expert validation test and student response questionnaire results.

Learning using basic mathematics concept teaching materials based on internalizing Islamic values can improve students' religious attitudes shown from the results of the initial questionnaire given at an average score of 70.22% while the final questionnaire reached an average score of 87.32%. An increase of 0.58 with the criteria being based on a normalized gain test.

References
[1] Sani, RA & Kadri, M. 2016. Pendidikan Karakter Mengembangkan Karakter Anak yang Islami. Bumi Aksara: Jakarta
[2] Mustari, M. 2014. Nilai Karakter Refleksi untuk pendidikan. Rajagrafindopersada: Jakarta
[3] Naim, N. 2002. Character Building: Optimalisasi Peran Pendidikan dalam Pengembangan Ilmu & Pembentukan Karakter Bangsa. Ar-ruzz media: Yogyakarta
[4] Abdussakir. 2017. Internalisasi Nilai-Nilai Islami dalam Pembelajaran Matematika dengan Strategi Analogi. Disajikan pada Seminar Nasional Integrasi Matematika dan Nilai Islami (SiManis) 2017, 6 Mei 2017, Jurusan Matematika FST UIN Maulana Malik Ibrahim Malang.
[5] Samsudi. 2006. Desain Penelitian Pendidikan. Semarang: Unnes Press
[6] Kurniati, A. 2015. Mengenalkan Matematika Terintegrasi Islam Kepada Anak Sejak Dini. Suska Journal of Mathematics Education. 1(1):1-8
[7] Nihayati. 2017. Integrasi Nilai-nilai Islam dengan materi Himpunan (kajian terhadap Ayat-Ayat Al Qur’an). Jurnal Edumath. 3(1):65-77
[8] Hanif, H., Ibrohim, I., & Rohman, F. (2016). Pengembangan Perangkat Pembelajaran Biologi Materi Plantae Berbasis Inkuiri Terbimbing Terintegrasi Nilai Islam Untuk Meningkatkan Pemahaman Konsep Siswa Sma. Jurnal Pendidikan: Teori, Penelitian, dan Pengembangan, 1(11), 2163-2171.
[9] Asysyifa, D. S., Sopyan, A., & Masturi, M. (2017). Pengembangan Bahan Ajar IPA Berbasis Komplementasi Ayat-Ayat Sains Quran Pada Pokok Bahasan Sistem Tata Surya. UPEJ Unnes Physics Education Journal, 6(1), 44-54.
[10] Ulia, N. (2018). Efektivitas Kolaborative Learning Berbantuan Media Short Card Berbasis IT Terhadap Pemahaman Konsep Matematika. Jurnal Ilmiah Pendidikan Dasar, 3(2), 1-11.
[11] Ulia, N., & Sari, Y. (2018). Pembelajaran Visual, Auditory dan Kinestetik Terhadap Keaktifan dan Pemahaman Konsep Matematika Siswa Sekolah Dasar. Al Ibtida: Jurnal Pendidikan Guru MI, 5(2), 175-190.
[12] Winarsih, I., Utomo, C. B., & Ahmad, T. A. (2017). Peranan Pembelajaran Sejarah dalam Penanaman Nilai Karakter Religius dan Nasionalisme di MAN Temanggung Tahun Ajaran 2016/2017. Indonesian Journal of History Education, 3(2).
[13] Yuliarto, A. S. (2013). Upaya Menumbuhkan Sikap Religius melalui Bimbingan Kelompok pada Siswa Kelas XI AK 2 SMK PGRI 1 Mejobo Kudus Tahun Pelajaran 2012/2013 (Doctoral dissertation, FKIP UMK).