Developing Model and Textbook Integrated to Spiritual and Social Competence of Math Subject for Grade VII in State Junior High School of Medan

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ABSTRACT

This research was conducted by Akrim, et al (2015 and 2016) with the aim of testing mathematics text book and integration model of spiritual and social competence that have been designed in the first year research to find out the shortcomings and to revise the topics, assessment, editorial, lay-out and others. Development of mathematics textbook for Grade VII conducted in scientific approach by emphasizing the integration of spiritual and social competence into the competence of cognitive and psychomotor on the learning materials, questions, and also the task of the project. Some parts of the material are expected to lead the students relating the material to be examined with the values of life.

This research was taken place at 3 State Junior High School of Medan which implemented Curriculum 2013 namely SMP Negeri 1, 34, and 38 Medan. To achieve the proper results of the study, this study applied Research and Development research. Researchers also actively involved to meet, observe and ask participants (6 teachers, 60 learners, and 24 parents) to expose the weaknesses of the models and textbooks which integrate spiritual and social values in the planning, implementation, and assessment of mathematics subject in junior high school. Learners are invited to reflect on God's creation and reflect whether the attitude and character in accordance with good social values.

In this second year, the draft of Mathematics textbook for grade VII of junior high school received a positive response from learners, teachers, and parents. Students gave positive response on Learning Material by 80%, Layout by 76.67%, Language and Readability by 86.67%, supplement materials related to Spiritual and Social Competence by 80%, Learning Activity and Media by 75%, Exercises and tasks by 78.33%, Feedback by 90%, While teachers also responded positively the presence of the book on the Learning Objectives by 100%, Input by 83.33%, Settings by 83.33%, activity (methods, techniques, and learning media) by 83.33%, the Role of Teachers by 100%, and the Role of students by 100%. Some parents were consulted to respond through questionnaires on the content of the book. They gave positive response to the students' motivation to learn in their home by 83.33%, attitude in the home and the environment by 79.17%, and the Ethics of Speaking in their home and public as well as 79.17%. In principle, respondents liked the part that touches on the value of attitude, especially on the material, matter, reflection (Refleksi) and Ponder (Remungkan). They became familiar with the attitude and value stated on the book and at the same time explored other positive values that can be developed in the book materials.

Keywords: textbook, testing, evaluation, positive response

INTRODUCTION

Curriculum regulates the implementation of learning in the classroom, therefore the curriculum is a reference for teachers in determining learning materials and appropriate methods that can be applied to achieve the goal of education. In order to improve the quality of education in Indonesia for the better, the government has made several changes of curriculum in accordance with the reality of the situation existing education. Finally the government of Indonesia issued curriculum that emphasize the cultivation of spiritual values and social self-learners that Curriculum 2013.

The existence of Curriculum 2013 can not stand alone without any other support. The curriculum itself should not be rigid and certainly requires interpretation, explanation, instruction either through technical guidance, seminars, workshops or textbooks. Learning and textbooks are the two things that reciprocal (complementary). Learning will take place effectively if
it is equipped with a textbook. Textbooks can be designed and used properly if it pays attention to a number of principles in learning. Learning components consist of students, teachers, teaching materials, method of learning, and assessments. Good textbook is a textbook that is able to reflect the indivisibility of all components, so that the teaching materials, teaching method, and assessments can be easily examined and implemented, both by students and teachers. Therefore, the textbook should be developed effectively and efficiently so that learners and educators are helped in teaching and learning certain disciplines. Then study in the second year is focused on testing draft of Math textbook for grade VII of Junior High School to obtain appropriate and constructive textbooks in generating better education output not only in terms of cognitive (knowledge) and psychomotor (skills) but also in spiritual and social aspects.

METHODS

Research Approach
This study is developmental research that aims to develop educational products and test the effectiveness of the product. This research was conducted for 2 years where the first year, researchers conducted an investigation of the problems that occur in the field related to the implementation of the curriculum 2013 mainly related to how the teacher pours spiritual and social competence in mathematics in the first year of junior high school. The results of these investigations became the basis for researcher to design a integration model of spiritual and social competence in mathematics in the planning process, the learning process and assessment. In addition, in the second year of this research, the researcher will develop the mathematics textbook which supports the integration of spiritual and social competence into knowledge and skill competencies.

Research Location
The research was conducted at several schools of Junior High School in the city of Medan that use the curriculum 2013, namely SMPN 1, SMPN 34 and SMPN 38 Medan.

Research Procedures
The procedures of the research are shown in the following Figure 1:

RESULT AND DISCUSSION

Data Analysis of Testing Integration Model of Spiritual and Social Competence

Planning
Something planned well it will produce well anyway. It also happens in learning process as factories that produce educated human outcomes. Then it needs to be planned material or materials applied learning, learning activities were implemented, indicators of achievement of competencies listed, enforce judgment, allocation of time, and learning resources are defined in the syllabus. So that these components also facilitate the learning that can help students develop the values, it is necessary to adapt the components of learning activities, indicators of achievement of competencies, and assessment techniques from the syllabus. The addition or modification of learning activities, indicators of achievement and assessment techniques in the syllabus must pay attention to compliance with core competencies and basic competencies associated with knowledge and skills.

The combination of spiritual and social values needs to be facilitated and developed since the learning process is designed by lesson plan. Teachers have committed to add an element of spiritual values and or social in their lesson plans as described as follows:
1. Adding and / or modifying the learning activities in the Lesson Plan, as well as adding valuable words of spiritual and social formation of values in each learning activity so nuanced learning activities designed to develop spiritual and social competence
2. Adding and / or modifying the indicators of achievement of competencies in the Lesson Plan primarily on basic competencies indicators related
knowledge and skills, thereby ensuring indicators related to the achievement of spiritual and social competence.

3. Adding and / or modifying the lesson plan assessment techniques on well with observations, self-assessment, peer assessment and journals consistently to develop and / or measuring the development of spiritual and social competence of students.

### Teaching Learning

#### Opening activity

In opening activity, teacher:

1. prepare students psychologically and physically to follow the learning process;
2. ask questions to remain the student about the lesson before continue the next lesson.
3. explain the purpose of learning or basic competence that will be achieved;

In the opening activities, activities that was done and the values of spiritual and social that was implemented and developed include the following.

1. Teacher entered the classroom on time (discipline);
2. When the teacher entered the classroom, says greeting to the students (politely);
3. Praying before starting the lesson and pray for other students who are ill in order to get well (religiousness, care);
4. Ensuring that every students come on time (discipline);
5. Giving warn to students who come late politely (discipline, polite and care)
6. Linking the material / competencies that will be learn with spiritual values and appropriate social.
7. conveying the scope of material and the description explanation of activities according to the syllabus.

#### Main Activity

Implementation of main activities is a learning process to achieve Basic Competence performed interactively, inspiring, fun, challenging, motivating the students to actively participate and provide medium for innovation, creativity, and independence in accordance with their aptitude, interests and physical and psychological development of learners. The math teacher has been using a method adapted to the characteristics of learners and subjects, which may include the following process:

#### Observing

In observing activity, the teachers have asked the students independently to see and hear visual media, audio and audiovisual about the topic / material's theme they will learn by applying the principles of nature with praise of creation, grateful for the perfection of his creators (religious, grateful, self-contained, logical thinking, creative, curious);

#### Asking

Asking activity, the teachers have facilitated the interaction between students and teachers, environment, and other learning resources politely and orderly (curious, cooperation, mutual respect);

#### Gathering information

In collecting information, the teachers have:

1. facilitated students by giving assignments, discussions, and others to come up with new ideas both orally and in writing (creative, confident, critical, respectful, polite);
2. provided an opportunity to think, analyze, solve problems and act without fear (creative, confident, critical);
3. facilitated learners in problem-based learning, project, search, discovery (cooperation, mutual respect, responsibility);

#### Reasoning

In reasoning activity, the teachers have facilitated the students analyze the patterns of mathematics closely related to everyday problems (conscientious, creative, hard working, confident).

#### Communicating

In communicating activity, teachers have:

1. facilitated the students present written or oral with responsibility and confidence in learning outcomes, what they have learned, skills or materials that still need to be improved, or strategics or new concepts were found based on what is learned. (responsibility, confidence, co-operation).
2. facilitated the presentation of the results of the students responded with courtesy and respect include give the question and answer session to confirm, denial and reason, give additional information, or complete the information or other responses. (courtesy, respect, critical thinking).
Closing Activity

Some activities was carried out to ensure that the integration of spiritual values and social can be more intensive is as follows:
1. Teachers have concluded the lesson relating knowledge aspects, then students was facilitated to obtain a valuable moral lesson, learned from the knowledge and skill or through a learning process in the past.
2. Teachers have assessed not only students’ cognitive and skill achievement but also on the development of students’ character.
3. Teachers have related feedback to the product or process to involve both competence and character and begin with the positive aspects pointed by students to grow up self-reliance.
4. Teachers have displayed students’ works to develop the mutual respect with other people's work and confidence.
5. Teachers have conducted follow-up activities, remedial learning, enrichment programs, counseling services and provided assignments individually and group assignment not only related to the development of intellectual ability but also personality.
6. Praying at the end of the lesson.

Assessing

Assessing mathematics achievement has been done in the form of test and non-test instruments. Assessment of the mastery of mathematical concepts was done through the test instrument and given scores based on the forms. The test instrument used to measure aspects of knowledge or skill. As disclosed in previous studies that the process of assessing student learning, teachers were required to make an assessment instrument that includes four competencies, namely spiritual, social, knowledge and skills competency. But in reality, to assess the spiritual and social competence, teachers simply using observation without making a clear assessment rubric, so that the development of spiritual values and social on students could not be seen objectively.

By discussing and mentoring done to the junior high math teachers of Medan, then the teacher has condone the inclusion of non-test instrument that can be used by the observation sheet teachers (observer) or questionnaire for students. Statements on observation sheets or questionnaire prepared based on the indicators of the character or value to be revealed. The assessment techniques was used to determine the character development is observation, peer assessment and self-assessment and journals.

In principle, teachers have applied the integration model of spiritual and social competence that have been resulted in previous research coupled with mentoring so after being observed the process of planning, implementation, and assessment of learning allowing teachers to run the curriculum 2013, which mandates to incorporate spiritual and social values integrated to knowledge and skills competence. However, it should continue to have discussions and further studies to keep refining the design or model that has been developed.

Data Analysis of Testing Math Textbook

To produce a representative and applicable math textbook for grade VII of junior high school, then the testing of textbook was analyzed. The analyses were performed to determine the accuracy and suitability of textbooks to the needs of students, teachers, and parents. This analysis was obtained from students, parents, and teachers. Needs analysis carried out through the use of instruments. As the foundation for the design and development in composing mathematics textbook for grade VII of junior high school, the results of the textbooks instrument analysis from students, teachers, and parents in junior high school was indispensable as outlined in the followings.

Students' Response

Data on students' responses regarding good textbook mostly acquired through the answers in the questionnaire described as follows:

Learning Materials

Based on data obtained through the questionnaire, it can be concluded that 80% of 60 junior high school students stated the mathematics textbook material from this research is feasible to increase the knowledge, experience, and insight. Then, 13.33% or 8 students chose the old material because they have not mastered the material quite well. The remaining 6.67% did not like the new material because they have not mastered the material.

Layout Display

In relation with the presentation of the material in the textbook, based on the results of the questionnaire, 73.33% or 46 junior high school students liked the layout and display that is completely new for them. The display of the book provided contextual insight and knowledge
with their lives. In addition, a new presentation is more fun and exciting for them to learn. However, there are 26.67% of students stating that it is better to use the old book display to memorize easily.

**Language and Readability**
Concerning the grammatical rules, usage of Standardized Spelling (Ejaan Yang Disempurnakan), the use of terms, symbols, and icons in textbooks. The questionnaire responses showed that 86.67% or 52 junior high school students liked the grammar and readability. According to them, with their initial description is accompanied by pictures related to the topic of each chapter making the book looked more contextual and applicable, and lead students to the comprehension. However, 6.67% of students found grammar and readability confusing, so they did not like it. Meanwhile, 6.67% stated that grammar is not essential because they thought mathematics is arithmetic abstract and uncertain. Some students gave input on the use of symbols, punctuation to break down the material so that its presence can assist students in completing a mathematics case simply.

**Supplement Materials Related to Spiritual and Social Competence**
When talking about supplements to textbooks, the results of the questionnaire seen that 80% or 48 junior high school students like their part of the book includes a ‘Wahana Diskus', ‘Renungkanlah’, ‘Cari Tahu’, ‘Ingatlah’, ‘Tugas Proyek’ and ‘Refleksi’ by general they got enlightened on the importance of spiritual values and social life. The meaning of responsibility, independent, honest and grateful to them while learning to dive into the book. According to them, it gives new insight and knowledge, can test capabilities, and make the book seem more varied so it is not boring, and make their brains to think. However, there are 13.33% of students who did not agree with that. They find that additional material such as ‘Renungkanlah’ and others above was difficult and not according to their abilities so as to make them less confident. Meanwhile, the 6.67% of students did not make any additional supplements related to spiritual and social competence.

**Activities and Learning Media**
In case of material containing much interaction in the classroom to support learning 75% of students agreed to it. According to them, these materials allowed them to talk to each other, knew each other, exchanged information, and provided an opportunity to interact.

While 23.67% of students disagreed because they preferred the teacher's explanation and learning outside the classroom. Meanwhile, the 1.33% of students stated some parts agreed and some others disagreed depending on the condition.

**Exercise and Tasks**
When being asked whether they liked the exercise provided an opportunity to practice in the classroom, 78.33% or 46 the students liked it. According to them, such exercises could be easier for them to practice and provided training for them to hone skills. 13.33% of students did not like the practice, because they preferred learning in the classroom. Furthermore, 11.67% of students stated that it was not influential and depending on the difficulty of each individual.

**Feedback**
In relation to the feedback on a matter, 90% or 60 the students liked it. According to them, the reflection or feedback that made them aware of incorrectness, allowed communication, improved their ability, made it easier to find information, facilitated self-correcting, easier to know their own capability, knew what wrong and what right is, and increased knowledge. 10% of students expressed disliked the feedback or reflection because it made them happy and felt confident.

**Teachers**
Beside analyzing textbooks on students' response, questionnaires were also given to teachers to determine their response to the textbook. There were six components of the textbook that need to be discussed in order to provide feedback to the textbook that has been designed, namely Learning Objectives, Inputs, Settings, Activity, Student Roles, Role of Teachers. Here are the results of the analysis of the teachers' responses:

**Learning objectives**
In case of learning objectives, learning activities were able to instill character values if the purpose was not only oriented to knowledge but also attitudes. Teachers responded positively with the percentage of 100% or 6 teachers admitted the existence of the additional orientation objectives in learning activities to the achievement of attitude or a certain value in mathematics such as logical thinking, critical, hard work, curiosity, independence, self-confidence, while the principal character developed in mathematics include
religious, honest, smart, tough, caring, and democratic has been listed in the textbook.

However, from the discussions, there were some idea on some material that need to be added to the spiritual and social values. Admittedly, the Mathematics textbook for grade VII are living documents that requires simultaneous critical and idea so anyone can provide input on the book.

**Input**

Input is a material or reference as a starting point to implement the learning activities for students. Input can be either oral or written text, graphs, diagrams, drawings, models, charts, real objects, films and so on. Teachers responded positively to the input that introduces values and not just presenting the material or knowledge associated to the material or knowledge with the percentage of 100%. Similarly, students, teachers also favored the textbook that includes 'Wahana Diskusi', 'Renungkan', 'Cari Tahu', 'Ingatlah', and 'Refleksi'. The part touched a stance that is highly related to the context of knowledge and skills.

**Setting**

Settings of study related to when and where the project is implemented, how long, whether individually, in pairs, or in groups. Each setting has implications for the educated values. Short time setting of task completion, for example, made the students familiar with the task quickly to appreciate the time well. Meanwhile the working group made students acquire the ability to cooperate, respect each other, and others.

In general setting of activity in the book was very good positive responses. Teachers gave a positive statement on the setting in the Mathematics textbook with a percentage of 83.33% or 5 teachers. The task group, project tasks, discussions forum, the number of exercises and competency testing were sufficient. However there were some tasks or activities that need to be corrected in the placement. From the experiments, there were many students who have difficulty in doing the task individually. It was suggested to use many activities that allow students to work on the task in pairs or groups. That was because in every task, students not only requires an understanding of the content of the materials studied but they also have to understand the language of the material.

**Activities**

Learning activity is what is done by the students (together with and / or without teacher) with learning input to meet the learning objectives. Teachers gave positive responses to the learning activities listed in the textbook with 83.33% or 5 teachers. They consider the activities in the book could guide students to internalize values. They also agreed with the active learning activities that encourage autonomous learning (self-learning) and learner-centered (student-centered). Autonomous learning and learner-centered automatically helped students gain a lot of the value of life.

Based on the results of the responses, it can be concluded that the activity used in the book is good. Nevertheless, there is still the need for increased variety of activities that refers to the content of the learning objectives. It is suggested that the activity should be referred to the content of learning, this is because to achieve the goal of teaching junior high in the attitude domain.

**Students’ Roles**

The active role of students in learning, namely, as an observer, inquirer, experimenter, discussions participant, presenter of discussion and experiment results, project implementers, and so forth. So It is required a textbook which able to facilitate in identifying, caring, and internalizing the values of life. To facilitate students in knowing, becoming aware of, and internalizing the characters, students must be given active role in learning.

From the results of teachers' responses, it was found that teachers consider the textbook made the students play an active role in the classroom. For example, activities that require students to undertake discussions on a topic with positive response by 100%. But many learning activities was still governed by controlled activities. It is suggested to have additional activity in the form of free activities to increase students' creativity in achieving learning objectives, especially in shaping students' character.

**Teachers’ Roles**

Teachers are an important element in developing student's social and spiritual values. The teacher's role in facilitating the internalization of values by students includes the teacher as a facilitator, motivator, participants, and feedback giver. From the results of teacher responses, they appreciated positively spiritual and social aspects developed in the book. Methods and techniques of learning are in accordance with the material context. For the selection of instructional media, teachers stated the media was quite easily obtained and
applied in the classroom and relevant to the material. In conclusion, the book has provided an opportunity for teachers to explore mathematics content and usability with the values of life.

Teachers responded positively to the teacher's role in the book with a percentage of 100%. However, feedback from the teachers, it requires teacher handbook to reinforce and clarify the existing orders on the activity of the book. Besides that, it is suggested that teachers should be more active in helping students to give meaning at each learning session they get. In addition, teachers should also act as facilitator and guide when students carry out activities in the book.

Students' Parents
Beside analyzing students' and teachers' responses on the textbook, questionnaires were also given to 24 parents to determine their response to the textbook. Their suggestion to the textbook is very necessary to know the changing indicators of the students because it is well known that students have more time with their parents than teachers in schools. Here are three aspects of the question given to parents.

Students Motivation in learning at Home
Motivation and interest are learning important characters in a learning process. Motivation can also arise when students have challenging learning to enlighten them.

Based on the results of the questionnaire, parents responded positively to students' motivation change to learn by 83.33% or 20 parents stating their child's motivation in learning math increases. In fact, sometimes they got some questions from their children about math subject.

Attitude at Home and Society
One function of education is to transform ignorance into knowledge also change the students' attitude towards the better. School is similar to factories that process raw materials into finished goods. The finished goods must have added sales value for consumer to purchase. Then education comes to produce students who have good attitude output value. Good attitude reflected in their behavior at home or in school. To investigate the change of students' attitude then several questions were asked to parents. 79.17% or 19 parents expressed there was some change toward positive attitudes in the family and society. They have already understood the meaning of redundant, worked mutual with their brothers and sisters at home, set the time between playing and learning.

Ethic of Speaking at Home and Society
Speaking is to produce, arrange the words on a regular basis through the speech organ to be understood by his interlocutors. Speech becomes important in the context of a relationship of communication with others. Language can show the personality and background quality of a person. Students as human beings who are educated must have good ethics and polite speech. The role of education is vital in directing students to communicate well and polite. Through education, students learn speaking attitude, intonation, and grammar toward others. Ethics of speaking is not only reflected in the school but also in the family and society.

To determine the students’ ethic of speaking in their homes and neighborhoods, it required questionnaires to parents because they knew much on their students speaking attitude. So it was taken 79.17% or 19 parents believed that the existence of an textbook integrated spiritual and social was able to direct good and polite speaking ethic. While 22% considered there was not influential on their children speech.

CONCLUSIONS
Based on the data analysis from questionnaires given to students, teachers, and students' parents as well as observation, and focus group discussion with teachers, it can be summarized as follows:
1. Integration model of spiritual and social competence has been applied in the process of planning, implementation, and assessment of learning through observation in the textbook experiment. Integration model allows teachers to run the Curriculum 2013, which mandates to incorporate spiritual and social competencies integrated to knowledge and skills, but needs to be explored linkage and attachment to material values that can be internalized.
2. After testing process, the results of responses to the textbook taken from three respondents sources namely students, teachers and parents with the following results:
   a. Students welcomed the mathematics textbook for junior high. It was characterized by a positive response to the subject material by 80%, layout display by 76.67%, language and readability by 86.67%, a supplement related to spiritual and social competence at 80%, activity and learning media by 75%, exercises and assignments 78.33,
feedback by 90%. They wanted the book to have material composition which is good, fresh, and directly related to life. In addition, the book should have many pictures or illustrations support that can add the students' interest and enthusiasm in learning. Regarding exercise or activity in the textbooks, students wanted the exercise or activity should be able to help students and motivate them to achieve learning objectives.

b. Teachers also welcomed the mathematics textbook for junior high. The positive response is characterized by a positive response to the learning objectives of 100%, input by 83.33%, amounting to 83.33% setting, activity (methods, techniques, and learning media) by to 83.33%, the role of teachers by 100%, and the role of students to 100%. But they wanted the integration of spiritual and social competence with the competence of an integrated knowledge and skills. Besides the material and form of exercise for each material tailored to the learning objectives and facilitate teachers in teaching.

c. In general, parents who responded well to the presence of junior high school mathematics textbook for grade VII with positive responses to the motivation to learn at home by 83.33%, the attitude at home and environment by 79.17%, and the ethics of talk in the home and community as well for 79.17%.

Based on the research results, the suggestions to the researcher pointed out are as follows:

1. The integration model is required to be disseminated and tested in various junior high school and need to be explored the relationship of various attitude value that can be applied in the learning process.

2. Textbooks need to be tested to many schools to strengthen the level of validity and reliability as a textbook in learning mathematics for junior high school students of grade VII.

3. The textbook can be one alternative textbook supporting the learning of mathematics in junior high school.

4. Textbooks should be accompanied with a teacher handbook.

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