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I take pride and pleasure to inform you that our reviewer has reviewed and recommended your Manuscript for publication in Vol.-6, Iss.-1 (Jan, 2018) in Scholars Journal of Arts, Humanities and Social Sciences (SJAHSS); ISSN: 2347-5374(Online) & ISSN 2347-9493(Print).

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Integrating Good Character Values in Mathematics Learning

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Abstract: The general purpose of this study is to integrate good character values in mathematics learning. Beginning with develop teaching material on analytical geometry of flat field. The teaching materials are designed to make the capacity fit the character development. Learning activities are included in the unit of lecture which is designed to facilitate knowledge of moral values, to realize the importance of values and to internalize good character values. The development is based on modified 4-D model consisting of define, design and develop.

Keywords: Integration, good character values, math learning.

INTRODUCTION

The establishment of good and quality character needs to be done in a systematic and continuous way starting from kindergarten to university. For that, character formation must be an integrated part of education. As it is stated by Firdaus Syam, says "Character building wants to restore the paradigm of thinking, so that the students are not only smart, knowledgeable and superior, but also responsible and ethical, this challenge must be answered by any campus" [1].

The emphasis on character building in education is also clearly stated in the description of Indonesian National Curriculum Framework/*Kerangka Kurikulum Nasional Indonesia* (KKNI) that "In accordance with the ideology of the State and culture of the Indonesian Nation, the implementation of national education system which is conducted in Indonesia at every level of qualification includes processes that foster affection namely good morals, ethics and personality in the accomplishment of their duties, is able to cooperate and have high social sensitivity and concern for the community and the environment, respect for diversity of cultural, views, beliefs and religions as well as the original opinions/findings of others, etc."

In the purpose of mathematics education, it is "putting the emphasis on reasoning, foundation, and character formation of students as well as putting pressure on skills in the application of mathematics".

The importance of instilling character to learners is also expressed by the humanist Frans Magnis Suseno [2] that "To build the character of learners, it must be supported with critical initiative and give time to those who put forward new ideas". Similarly, Lickona [3] states: "The role of schools as a place of moral education is becoming increasingly important when millions of children get little moral education from their parents and when the meaning of the most influential values which is gained through other worship places is getting meaningless and disappeared of their lives". At this time, when schools do not provide moral education, the influence of violence on children characters so quickly enters and makes the prevailing values become vacuum. "In another part it states that" value education is a work that is very likely to be done."

It is considered that Higher Education has a choice in teaching the formation of characters that can integrate them naturally with the standard curriculum or teach in tandem with the standard curriculum. Instead of adding a series of separate meetings to the curriculum that is already solid, the easy option is to integrate character education with subjects/courses in all classes by all educators [4].

As an institution that produces educational personnel, mathematics education program at FKIP UMSU needs to prepare 21st century mathematics teachers who are not only ready to complete the curriculum (cognitive aspect), but also the character. So that later, they are able to form the next generation characters who can face the challenges of the future that is fast-paced, constantly changing and dynamic.

From the values that are developed above, there are ten characters that are required to be developed in learning. These ten characters are discipline, appearance, politeness, ability to work

together, communication skills, commitment, exemplary, passion, empathy and responsibility. So the purpose of this study is to integrate good characters values in mathematics learning that begins by developing the materials on analytical geometry of flat field.

THEORETICAL STUDY

Character Education in Mathematics Learning

Aristotle [3] defines good character as life by doing the right actions with respect to the person and others. A virtuous life includes self-oriented goodness (such as self-control and moderation) as well as other things-oriented goodness (such as generosity and mercy), and both types of goodness are related. While Koesoema [2] states that character as "the personality is the characteristic of a person who comes from the formations that are received from the environment". In the same section, Winnie states there are two notions of character. First, it shows how someone behaved. Second, it deals with "personality". A person is called character if his behavior is in accordance with moral rules.

So, character is a way of behaving that is the formation of environment. This environment is, such as family, school and community.

Character consists of an operative value, a value in action. We proceed in our character, as a value becomes a virtue, a reliable inner disposition to respond to situations in a way that morally is good.

Character has three interrelated parts of moral knowledge, moral feeling and moral behavior. Good characters consist of knowing good things, wanting good things and doing good things-habits in way of thinking, habits in the heart, and habits in action. These three things are necessary to guide a moral life; they form moral maturity.

Values that are in Mathematics

If it is traced, in mathematics there are three main values, namely practical value, discipline values and cultural values. Basic knowledge of mathematics and skills using it is a necessity. This can be seen in everyday life. To learn about other fields, mathematical help is necessary.

Mathematics is one means to instill the habit of reasoning in the soul. Mathematics is also an exact science, true and always direct to the target. Because of that, it can foster discipline in the soul. To declare the truth or error of the statement, it must have the right reasons. Mathematical reasoning is excellent and is suitable for training the learners' souls for simplicity, accuracy, authenticity, checking and testing results.

Mathematics is created out of necessity and to facilitate problem solving. Values with respect to

cultural values are the development of concentration power, the nature of economics, the ability to express opinions, believe in oneself, the desire to discover, the desire to learn and read and the ability to work hard.

Thus, mathematical learning contributes significantly to the development of good characters. The value of characters that can be developed through mathematics learning is respect, discipline, honest, hard work, creative, curiosity, independent, communicative, responsibility and humility.

Development of Teaching Materials

The purpose of teaching materials preparation are: (1) to provide teaching materials in accordance with the demands of the curriculum by taking into account the needs of learners, that is teaching materials that match the characteristics and settings or social environment of learners; (2) to help learners in obtaining alternative of teaching materials in addition to text books that are sometimes difficult to obtain and (3) to facilitate in carrying out learning.

The principles that need to be considered in the development of learning materials include the principle of relevance, consistency, and adequacy. The principle of relevance implies that teaching material should be relevant or there is a connection to the achievement of competency standards, basic competencies and content standards. The principle of consistency means sharpness. If the basic competency that must be mastered by students is one kind, then the learning materials that must be taught must also include one kind. The principle of adequacy relates to the scope and sequence of learning materials.

Problems of scope, depth, and sequence in delivering learning materials are important. Accuracy in determining the scope, scope, and depth of learning materials will prevent the lecturer from teaching too little or too much, too shallow or too deep. While the precision of the presentation sequence (sequencing) will make it easier for learners to learn the learning materials.

In determining the scope of learning materials, the principles that need to be considered concern the breadth of the material and the depth of the material. The breadth of the material describes how much material which is included in the lesson. While the depth of matter is how detailed the concepts that must be studied/controlled by learners.

Learning materials that have been determined its scope and depth can be sorted through two main approaches, namely: procedural and hierarchical approach. The sequence of learning materials procedurally describes the steps in sequence in accordance with the steps to carry out a task. While the sequence of learning materials hierarchically describes

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been collected. Conclusion is based on data reduction and data presentation as the answer to the research problem.

RESEARCH RESULTS AND DISCUSSION

The analytical activities that have been through at this step are the final preliminary analysis, student analysis, task analysis, concept analysis and learning goal setting.

In this final preliminary analysis step, it is conducted curriculum analysis, relevant learning theory and future challenges and demands to make the students which are produced have good character. Thus the description of the learning pattern is considered the most appropriate.

The analysis result on the curriculum of mathematics education in UMSU is obtained the course of analytical geometry of flat field is the basis for programming the course of space analytical geometry, high school mathematics and advanced calculus in the next semester. Therefore, it needs to be a strong emphasis on the importance of the material in this course as a foundation for studying this course. For example, the line on field will underlie the line in space, the vector on field will underlie the vector in space, the circle will underlie the ball, the parabole will underlie

the parabolite, the ellipse will underlie the ellipsoid, and the hyperbole will underlie the hyperboloid.

An analysis of the secondary school curriculum relates to analytical geometry of flat field is also conducted. The result of the deepening to the secondary school materials, first the related material is the location of points on the field of cartesius coordinates and polar coordinates, vectors on field, lines on field, circle, parabola, ellipse and hyperbola. The depth of the discussion on material of circular, parabole, ellipse and hyperbole is only to the tangents in those places of position.

In the teaching materials that have been compiled, in addition to accommodating secondary school materials relate to the analytical geometry of flat field above, it is also considered that this course is the foundation for deepening courses of space analytical geometry, calculus and secondary school mathematics. So the depth of the material is also highly regarded. For example, the material of circle comes to the discussion of circle file. While on parabola, ellipse and hyperbola, the discussion is up to the point and polar line to parabole, ellipse and hyperbole. Even on hyperbole teaching materials, the discussion goes to the vocal hyperboles. Thus, based on curriculum analysis, the analytical geometry of flat field is as in table 1 below.

The analysis of student characteristics is done by observation to students who have the course on analytical geometry of flat field in the even semester of academic year 2016/2017. Observations are conducted for one semester. The analysis result of student characteristic are: a) The background of understanding on the concept to analytical geometry of flat field is very low; b) After attending lectures for seven meetings, the movement of understanding is not as it is expected. This appears on the midterm exam in which the score of most students is below 60; c) The tendency to follow the completion of the examples is greater than the effort to attempt in solving in their own way the questions that are given in analytic geometry courses. Thus, students tend to be less motivated to be creative; d) At the time of presentation, only few of the students who attempt to master the material on analytical geometry of flat field that is assigned to their group; e) Students' ability to describe the graphs of ellipse, parabole and hyperbole is lacking. Especially, if the centers of such position places are not at the origin point; f) the ability to prove theorems in analytical geometry of flat field is lacking.

The result of observations on the characteristics of students is in accordance with the results of classroom action research which is previously conducted by Panggabean [1]. In cycle I with Line on Field, it is found that

"Most of the students still have difficulties in understanding the lecture material, the difficulty is seen from the mistakes of students in answering the result test of learning. The errors are then identified and the result is as follows.

- False in determining the meeting points to X axis and Y axis, consequently false in drawing a straight line graph in the coordinate field.
- Be able to specify meeting points but false in placing the points on the coordinate field.
- Some students can specify the line meeting point to either X or Y axis but not both. In this case the student forgets the theorem that states "from two points can be made one line".
- False in determining the straight line gradient. The result is false in calculating the angle which is formed by two straight lines.
- Be able to determine the line gradient but false in the procedure of determining the angle which is formed by two lines.
- False in the procedure of determining the distance of point to lines.
- Correct in the procedure of determining the distance of point to line but the final result is negative.
- False in writing the equation of line mark.

Similarly in cycle II. The findings, some students still have difficulty in understanding the circle material. This is shown by mistakes which are made by

students in completing the test of learning results, namely:

- In determining the equation of a circle through three points, student can write 3 equations with 3 unknown numbers but can not solve the system of linear equations.
- False in determining the circle radius and center.
- False in determining the equation of the tangent line which is parallel to the Y axis, parallel to the X axis and the equation of tangent at a specified point.

Based on the analysis result of student characteristics and the results of the above study, to facilitate and to improve the students' ability in understanding a concept, to describe the cone graphs, to prove the theorem and to integrate good character setting, it is compiled the teaching material on analytical geometry of flat field analytical after preparing the semester learning plan, unit of lecture. The preparation is done after analyzing the concept and tasks analysis that must be done by the students.

Relevant concepts which will be taught based on the analysis results are as in Table 1 above. Based on the table, a concept map is created for each subject.

The identification results of the main tasks / skills which are undertaken by the students during the learning are then analyzed into a more specific sub skill framework. In accordance with the study materials that are selected is Analytical Geometry of Field I then based on the syllabus it gets learning achievement as follows.

- S9: Demonstrate a responsible attitude towards the work of his expertise field independently.
- P1: Mastering the concepts and principles of pedagogy, mathematical didactic and mathematical science to perform planning, management, implementation, evaluation, and using IPTEKS that is oriented on Life Skills (IPTEKS).
- KU1: Able to apply logical, critical, systematic, and innovative thinking in the context of scientific or technological development or implementation that cares and implements the value of humanities which is appropriate to their expertise field;
- KK1: Able to apply the concepts and principles of pedagogy, mathematics didactic and mathematics science to perform planning, management, implementation, evaluation, by using IPTEKS (life skills) that life skill-oriented.

The main features of this model are the posing of questions or problems, focusing interdisciplinary linkages, authentic investigations, cooperation and producing work and demonstrations. With these characteristics, learning with PBI approaches, the aspects of beliefs such as self-esteem, optimistic, objective, responsible, rational and realistic can be developed [6].

The concept map-assisted MASTER strategy is also worth considering. The result of class action research which is conducted by Panggabean [1] shows that student activity during learning of Analytical Geometry on Flat Field by applying concept map-assisted MASTER Strategy shows an increase of each cycle. Developing concept maps requires students to identify and to organize information and to build relation between parts of the information. Students also create a knot that shows a concept and the concepts are linked using lines, which are labeled to show the relation between concepts. This will naturally help students understand the interconnectedness of concepts. They can even see a wider connection between ideas and learn them as a cohesive unity.

Contextual teaching and learning (CTL) which is constructivistic, is also an appropriate learning approach to analytical geometry on flat field. With seven major components, namely constructivism, inquiring, inquiry, learning community, modeling and authentic assessment, this approach helps students to search for relation of mathematical concepts with their sensible and useful environmental situations. The researcher's reason for contextual teaching is the teaching that enables learners to strengthen, extend, and apply their academic knowledge and skills in a variety setting of inner and outer class.

In addition to these elements, the characteristics of CTL are collaboration, mutual support, fun, integrated learning and use of various sources. These things will result in a deep knowledge base of which students are rich in understanding the problem and how to solve it.

Cooperative learning also teaches the value of character and academic as well. This strategy involves students working in collaboration to achieve common goals. This learning is structured in an effort to increase student participation, to facilitate students with leadership experience and to make decisions in groups, and to provide opportunities for students to interact and to learn together with students of different backgrounds.

The more specific advantages are (1) cooperative learning teaches the values of cooperation; (2) cooperative learning builds community in the classroom; (3) cooperative learning teaches basic life skills that is to work together to achieve common goals;

(4) cooperative learning improves academic achievement, self-esteem [3].

The learning of class discussion model is the suggested approach in unit of lecture. Two aspects of classroom discussion are the ability to develop cognitive growth and the ability to connect and to incorporate cognitive aspects and social aspects of learning.

Discussion is a situation in which students and lecturers, or between students and other students talk to each other and share ideas and opinions. Lecturer will understand what is in the student's mind and how to process ideas and information which is taught through the communication that occurs during the learning takes place. Questions which are posed to stimulate discussion are the questions with high cognitive level. Thus, the Discussion System is central to create a positive learning environment.

CONCLUSION

Learning that integrates good character works through the content of the material in learning. The process of integrating good character begins with the planning step. This planning can be seen in the semester learning plan, unit of lecture and teaching materials that will be used in the classroom, the implementation step is during lecturing and evaluation step.

Because the process of integrating a good character can work effectively if it is supported by all learning components such as, the input component which is the student itself, the input instrumental component which is in the form of supporting facilities and the input environmental components which is environment, then in subsequent research, teaching materials will be validated by the experts before it is being used on small class trials and real classes. The integration of good characters is done in the implementation of learning.

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