

## **Implementation Of Character-Building Education In Mathematics Teaching And Learning To Create Of Human Character**

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### **Abstract**

Character is a part of human doing. Recent, human's character become decrease. The phenomena of the decreasing of human character are corruption, killing, and Its also happened in education. Regardless of that, education can be one of preventive solution in crisis character and culture in Indonesia. The Government has expectation by integrated character education into curriculum of education can be able to cope in crisis of human character and culture. The character can be increase by education are: attitude of believe in God; respect for science; respect for other people; attitude of appreciating ourselves as perfect being; respect for mathematics as a history and civilization; critical thinking to convey of idea; carefully; work hard and have a passion to solve every problem; discipline; responsible; and consistently. Mathematics as a subject in the curriculum of education has six value that can be integrated in teaching and learning, they are: careful, diligent, hard work, curiosity, persistent. Based on the five value in mathematics education and oriented to approach in teaching and learning mathematics, such as exploration, inquiry, discovery could be destination of success in education specially in mathematics and also can be a create a human who has good character.

Key word: Character, Mathematics

### **I. INTRODUCTION**

Based on the policy of the National Education of Indonesia, year 2003, the purpose of education is improving of student's capability in intelligence, good personality and behavior. The Government expected that by means of educations both formal and informal can build the character of Indonesian young generation. Education as a preventive solution in crisis character that happened in Indonesia, therefore character education integrated into curriculum of education. Finally, education can be able to cope in crisis of human character and culture who is appreciate in outlook Indonesian nationality, and religious.

In fact, there are crisis in human character and culture in Indonesia. In education, bad habit from our students can shows as not comply with the norms in or out of school, wanton act, students brawl, corrupt official, etc. we see that poor behavior

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can be happened in the social, politics, economic, and the other. We can see on television, there are many people do not have good character.

Teacher and parents have a role in build of student's character, education which is provided by teacher and parents will be memorized and be followed by students. Whatever is done, the behavior will give experience for children to deal with the situation.

In essence, the children always behaves and has a very strong reasoning abilities (Damon, W., 2002), by developing two things –behavior and strong reasoning– will make the students become more confident, focused in learning, so that children could not be influenced by the environment even that good or bad situation. Further, Damon, W., (2002) mentions that one aspect in the teaching of character that must be owned by a teacher is the attitude of morality, the point is to teach values in general to help students acquire a variety of forms of morality, so that students will maintain the attitude/morality is in many situations—joyful, grim, inspiring, corrupt—, which will be found in everyday life.

Domes, W., (2002) says that children must learn about belief and value in morality based on this step: students learn through clear of message —consistency and ambivalent moral will leave students rigid thinking—; students learn through positive habit. Students must active, they have sense of curious to new knowledge, therefore they will not fragile, because the real danger is inside of them; and thinking flexibility —they can absorb local wisdom and make a choose what they are needed.

Character Education can be integrated in teaching and learning process, it is mean that every subject must be connected with the norm or value and also improving and application with the daily life. So, the value of character not only shows in cognitive aspect, but they must be internalized as a real accomplishment in social life.

Education has responsibility on developing human character, by the effort can be done by planting of local or national culture, change curriculum, teaching and learning, assessment or evaluation, and habits of all the educators. According to Greenberg (2003), education make students be knowledgeable, has skill, healthy, care, responsible, and hard working as a good civilization. To build of student who has basic in character, culture, intellectual and commit to long life education. The quality of education that must be through by interaction in social life with skills and responsible: to practice of

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positive habit, no harm and healthy way; to support with ethical and responsible in group, family and school; and to have basic competency, work culture and values as the basic for potential workers or citizens.

Thus based on literature review, the author explain how to integrated between character education and teaching of mathematics. The Urgent of the theme as an expression that shows to audience about how to implementation of teaching mathematics based on character education. This is important to investigate, because this is our duty as a mathematics teacher. Besides that, this article is an investigation to the aspect of character building that can be improving or integrated in teaching of mathematics. The author hopes that the audience can be motivated to do research about developing of teaching mathematics –syllabus, design, lesson plan, material etc.- that integrated with character education. Finally, we –mathematics teacher- can improve students as a personality become young generation who has good character and appreciate to nationality of Indonesia.

## **II. DISCUSSION (EXPLANATION)**

### **A. Overview of Character Education**

Before define character education, author cite the definition of character. Berkowitz define character as “an individual’s set of psychological characteristics that affect that person’s ability and inclination to function morally,” it mean that character can direction a person doing good or bad therefore shows function morally.

Khon (Schwartz, 2002) define character education as “a collection of exhortations and extrinsic inducements design to make children work harder and do what they’re told. Even when other values are promoted —caring or fairness, say—the preferred method of instruction is tantamount to indoctrination”.

Character education involve three aspects, are: cognitive, feeling and action. According to Tappan and Brown (Schwartz, 2002) character education in formal and non formal can teach by moral experience of teacher, although this experience will give students in self-denial. “Shame” is one of example in character (Damon, 2002), it is defines as moral emotion that build from our heart and our mind. Most of people

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confused to understand what is the difference of shame and respect, even “shame” is usually associate closed with honor, based on Shakespeare II says that “mine honor is my life, take honor from me and my life is done”.

Further, Tanan (2008) mentions nine pillars of character in general, there are: believe in God and love with all his creation; independence and responsibility; honesty; respect and courteous manner; philanthropists, cooperative; confidence and hard working; leadership; humble, and; tolerance, peace, and unity. The nine pillars of character can be teach in a holistic educational model with the combine of method knowing the good, feeling the good, and acting the good. Knowing the good is a method which is correlation with cognitive knowledge, feeling loving the good, is one of the way how to correlation between feel and love virtue, so the people are drive to do better. It makes people growing awareness. Therefore the people will act the good and it will be a good habit too in the life day.

The basic of character education, should be applied since young age because for this moment children can develop their potential maximally, psychologists are call it golden age. But for some families, process of character education feel difficult to implement, particularly for parents who are stuck on a solid routine. Therefore, character education should also be given when children in the school environment. Here is role of teachers begin, teacher must be spearheading in the classroom, to create good human character.

Furthermore, Nazi Germani or Mao’s China (Schwartz, 2002) mention of learning process for character that teachers can do, following steps (1) teacher shows students a confidence, (2) teaching methods must be clear and not force, (3) lesson content consists of doctrine and ideology, and things that are forbidden , and (4) the results of the educational process very closely and with an open mind. As well as Nazi, Lickona (Arthur, 2003) mention eleven principles to develop program of character education, they are: School is committed to ethical of values; Characters should be integrated of thinking, feeling and behavior; Schools must be proactive and systematic in teaching and do not wait for the opportunities; Schools develop a sense of caring and become a caring community; Doing variety of morality and open to all; Academic study should be a primary goal; Developing of students' intrinsic motivation, therefore they committed to values; Collaboration and sharing about norm; Teacher and student must

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share the moral leadership; Parents and the neighborhood became a partner school; Evaluate the effectiveness of character education between schools, staff and students.

## **B. Character Education refer to Curriculum**

John Wilson (Arthur, 2003) said that “Moral qualities are directly relevant to any kind of classroom practice: care for the pupils, enthusiasm for the subject, conscientiousness, determination, willingness to cooperate with colleagues and a host of others. Nobody, at least on reflection, really believes that effective teaching –let alone effective education– can be reduced to a set of skills; it requires certain dispositions of character”. There is no one exactly method or appropriate to improve of character, but we have to teach character to our student, because character education is one of moral dimension.

Ryan and Bohlin (Arthur, 2003) offers seven competencies that can help teacher arise character education: Become a good model of character, and develop their own character; Seeing the development student’s character as a responsible of duty; Encourage students in moral discussions about good things and bad; Explain of their position by acting morality and do not acting as a dictator; Guide students to empathize to others' experiences; Do a positive moral ethics in the classroom; To facilitate student’s activity within and outside the classroom.

Indonesian government has sought to improve the quality education. it is indicated by a change in the education curriculum. Last curriculum imposed in Indonesia since year 2006 is KTSP, developed based on the following principles:

- a. Centered on the potential, progress, needs, and interests of learners and their environment. To support of these goals therefore developing of student’s competence must be suit with the potential, progress, needs, interests and the demands of the environment.
- b. Diverse and integrated. It means curriculum be developed by taking into account of diversity of characteristics, local conditions, levels and types of education, regardless of religion, tribe, culture and customs, as well as socioeconomic status and gender.

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- c. Responsive to the development of science, technology, and art, therefore spirit and content of curriculum can encourages students to follow and make the proper development of science, technology, and art.
  - d. Relevant to needs of life. It mean developing of curriculum should lead to interest of stakeholders to ensure relevance of education to needs of life, include of social life, business and work.
  - e. Comprehensive and sustainable. It means that substance of the curriculum include all dimensions of competence, field of study and subjects which is planned and presented for all levels of education.
  - f. Long life education. It means that focus of curriculum is process of development, cultivation and empower of students for long life.
  - g. Balancing of national and regional interests. It means that curriculum was developed by taking national and regional interests to build the life of society, nation and country.

### **C. Teaching and Learning Mathematics based on Character Education**

Character education can be integrated in all subject matter. It is mean that teaching mathematics should also be instilled through an understanding of character education concepts in mathematics.

Schumann (Ngai, 2004) says that “In general, the Syllabi state that the general aims of mathematics education are to: provide fundamental knowledge and skills in important areas of mathematics; provide security in the techniques, algorithms, and concepts which are necessary for mastering everyday life in society; develop the ability to state facts mathematically and to interpret the contents of mathematical formulae; it should make possible the solving of non-mathematical or environmental phenomenon through mathematics; teach pupils to think critically and to question; give examples of mathematics as a cultural creation in its historical development and in its importance in the development of civilization; provide terms, methods, and ways of thinking that are useful in other subject.”

The examples of the implications of character education in mathematics learning that occurs in some countries submitted by Ngai (2004), such as in the Australian instilled a confidence in dealing with mathematical situations or problems, learn the

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techniques and tools that reflect of modern mathematics; in Germany, students apply theory and tools to solve scientific problems, in France, emphasizes learning of mathematics should connect of mathematical activity with mathematical concepts, in Japan, topic of learning based on the knowledge and skills that are carefully selected. The emphasis lies on the activities independently, a sense of pleasure in math activity, and connecting mathematics with everyday life, in Singapore, the learning of mathematics always focused on problem solving, In China, focusing on old tradition, which is education consists of two basic mathematics (basic knowledge and basic skills) and three abilities (calculation, logical thinking, and spatial visualization).

Basically, development of mathematics curriculum is not related to level of school. In China, all students can understand mathematical concepts; with the expectation that: everyone respect to value of mathematics; everyone be aware to importance of mathematics; the difference of the people shown on development of mathematics.

Learning of mathematics was developed in Indonesia, has integrated with values, and it will help students to developing their character. For example, people who like doing math, they like challenges, critical thinking in problem solving, talk less but do more, have a sense of social work than a social person, hard worker etc. As written in NCTM (1989) “that students learn to value mathematics, become confident in their ability to do mathematics, become mathematical problem solvers, learn to communicate mathematically, and learn to reason mathematically”

Character that can be developed in mathematics, such as: believe in God and love with all his creation; independence and responsibility; honesty, this attitude will arise students be honest and do not cheat; respectful and courteous manner; cooperation; confidence and hardworking; this attitude appears when there is a sense of satisfaction from the students themselves when they can solve the problem properly in accordance with the understanding; leadership; humble, attitude comes at the same discussion group, where students who are good to help other students whose low capacity with patience, and the last is the character of tolerance; peace and unity, this attitude will also be visible at the time of study groups, students who are good at will help students who are un-clever, each group member can appreciate each other so it will be interwoven into one of peace and unity in resolve the problem.

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Developing mathematics curriculum synonym of word “high order thinking, generic skill, value, real life mathematics, interest, relevance, confidence and attitude, individual differences, information technology, holistic consideration (Ngai, 2004).

There are three points which is needed to be considered in developing learning mathematics refers to Ngai (2004) :

1. The “product-process” dichotomy, it means that we have to eliminate the dichotomy between ability and skill in mathematics and also the ability and non-math skills. Generally, the ability non-mathematical emphasis on developing creativity, values and beliefs. Five general abilities that can be developed in mathematics are: being observant, memorization, imagination, thinking, and attentiveness.
2. Cross-subject learning: Lost of subject self-esteem? It means that teachers have a duty to achieve Cross-subject learning. One of the roles of teachers to make understanding of students through ability in mathematics, and changing of real objects become mathematical objects. Curriculum mathematics should be arranged in several stages which are show progress from concrete to abstract objects. Content in mathematics should be structured to encourage students to improve their experience with concrete objects before teaching formal. Concept abstract must be back up with various examples in everyday life (both examples of mathematics and non-math).
3. The expanding goal: An expanding control? It means that expansion of learning goals, different aspects of learning will be used as a standard. Description of the expansion beginning from what happens in the classroom, point of view children at school and outside school.

By learning mathematics, character education can be implemented. Cite from The rule of ministry of education number 16 year 2007 regulates that the competence which is has by teachers are pedagogical competence, personal competence, social competence and professional competence. Regarding of teachers competences as explanation above, teacher should be a model in developing of student’s character. The character need to be develop, are: Act in accordance with religious norms, legal, social, and national culture of Indonesia, Showing as personally which has honesty, noble, model for students and environment, Showing as a person of steady, stable , mature, wise, and authoritative; Showing ethos work, responsibility, a sense of pride to be a



teacher, self-confidence, and uphold of the professional teachers.

Further, there are five values on character building that can be integrated in mathematical teaching refers to Hasan (2010). However, different levels in education causes different pursue knowledge. Look at the Table 1,

Table 1  
Character in Learning Mathematics

Level 1-3	Level 4-6	Level 7-9	Level 10-12
Carefull	Carefull	Carefull	Carefull
Creative	Creative	Creative	Creative
Hard Work	Hard Work	-	-
Curiosity	Curiosity	Curiosity	Curiosity
Persistent	Persistent	Persistent	Persistent

### III. CONCLUSION AND SUGGESTION

#### a. Conclusion

Character education should be taught to students not only to provide knowledge but to provide life experiences that can apply the norms, culture and personal development. Character education is not taught separately into a separate subject, but character education should be integrated in every subject.

The character can be increase by education are: attitude of believe in God; respect for science; respect for other people; attitude of appreciating ourselves as perfect being; respect for mathematics as a history and civilization; critical thinking to convey of idea; carefully; work hard and have a passion to solve every problem; discipline; responsible; and consistently. Mathematics as a subject in the curriculum of education has six value that can be integrated in teaching and learning, they are: careful, diligent, hard work, curiosity, persistent. Based on the five value in mathematics education and oriented to approach in teaching and learning mathematics, such as exploration, inquiry, discovery could be destination of success in education specially in mathematics and also can be a create a human who has good character.

#### b. Suggestion

Based on the explanation above, the author suggest to the audience:

1. Implementation of teaching mathematics based on character education, because this is appropriate to government policy to improve quality of education.

2. Mathematics teachers can developing of teaching mathematics material–syllabus, design, lesson plan etc.- that integrated with character education.
3. Researcher can do research about effectiveness of implementation character education in mathematics teaching and learning to create a young generation who has good character.

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