

# Building Student's Honesty Through Contextual Mathematics Learning

## Membangun Jiwa Kejujuran Siswa Melalui Pembelajaran Matematika Kontekstual

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**Abstract**—The character of honesty is very important in every aspect of life and human' soul. Building student's honesty will be a problem solution faced by our nation today and in the future. Honesty is needed to strengthen the development of mental, physical and spiritual for each student. Without honesty, the students and the next generation will face various problems in the future. So, they will be difficult to establish their identity, improve their potential and build social credibility. Student's honesty can be trained and developed by learning in classroom, especially in mathematics learning. Contextual learning based on intelligence is suitable for building the student's character of honesty because teacher will represent the real world in teaching and learning process and encourage the student to make connections between knowledge and application in their daily lives. Eventhough, the student should find skill and knowledge from the limited context, but they should know how to construct the knowledge for solving a problem in their life. All of teachers should realize that all of students have the different ability and knowledge is one of aspects to get closer to the greatness of God and the reality of life can give a training for student to construct mathematics in their daily lives as an effort to build student's honesty for next generation in the future.

**Keywords:** *contextual, honesty, learning, mathematics*

### I. INTRODUCTION

Image of education today is the result of education in the past and will be a large aspect for education in the future. The success of education today will give the positive effect for education in the future. Education is one of many aspects for building the student's character. Doing a mistake for educating gives different result of our expectation which can effect for student's life in the future. As we know, student will face a real life and different problems. So, educator should teach the best for good effect in education result.

Mathematics is one of subjects which can foster and implement value of the culture and character. In Indonesian schools, Mathematical learning always has a large contribution to build student's value of the cultural and character such as honest, independent, persistent and creative. This was confirmed by the Law of the Republic of Indonesia Number 20 of 2003 on National Education article 3: "The National Education serves to develop skills and build the character and civilization of the nation's dignity in the context of the intellectual life of the nation and is aimed at developing students' potentials noble, healthy, knowledgeable, capable, creative, independent, and become citizens of a democratic and responsible". Based on this law, education has duty to build student's value of the culture and character.

Mathematics always in human's daily life. Human;s life make a circle social for interaction. These interactions should contain an honesty. For example, using a number in our interaction for describing a distance, age, weight, price and amount etc. Indirectly, mathematics may teach implementation of someone's honesty. This character be a wish to keep being implemented and developed in our lives. So that, this paper which is our effort to develop an honesty implementation in concept of mathematics

learning. As an educators to be, we should give an effort in our nation education to build an honesty character.

## II. CONTENT

### A. *Mathematics builds what the character is*

Gardner who is a director of Project Zero at the Harvard Graduate School of Education declares a development for thinking method, well known as Multiple Intelligence. One of Multiple Intelligence Theory is intrapersonal intelligence. This intelligence is most personal, and need more other intelligences such as social environment for interaction and cooperation in a teamwork to understand someone's intrapersonal intelligence[1]. Teamwork in mathematics learning is applied in cooperative learning. Cooperative learning which can contain a contextual problem will train a value of honesty in theirself.

Mathematics teach us to think from a smallest structure and its development. Sumardiyono has a describe about mathematics as following below[8].:

- Mathematics is an organized structure. Mathematics has component axioms and theorem which discuss the concept of mathematics development.
- Mathematics is as a tool. To solve problems in daily life can use mathematics. For example, process to buy and sell a product.
- Mathematics is a deductive thinking. Deductive is a way to accept a truth and be proved in general.
- Mathematics is reasoning thinking. Reasoning is a way to prove and be thought by systematic and organized.
- Mathematics uses artificial language. Language of mathematics uses symbolic language and meaning in certain contexts. According to Galileo Galilei, Mathematics is a universal language, it means, the meaning match to context and reasoning.
- Mathematics is a creative art. Learning mathematics has connection to answer a question and prove a theorem with a lot of way from those. The context of mathematics learning teach us to know how to understand, express a creativity, use a lot of methods to students about the material. Honesty is a truth, the truth which would have real evidence.

### B. *Build mathematics concept*

Romberg, a mathematician, says that mathematics has discipline about knowledge. Mathematics has concered structure of language, logic dan everything need to be observant[2]. Mathematics always teaches us to be cautious in attitude. That attitude should be included in mathematics learning for training student's attitude. The structure of language trains students to be careful of their speech. Building mathematics concept should contain the coherent-well basic of ideas, rules and its development. Its goal is for changing student's mindset to think mathematically. In mathematics class, teacher should have to provide an understanding concept of contextual learning analogy. So, building a structure concept of mathematics will help student to realize their honesty.

### C. *Contextual Learning*

Berns and Erickson say that "*contextual teaching and learning is the concept of teaching and learning that help teachers relate subject matter content to real world situations; and motivate students to make connections between knowledge and its application to their lives as family members, citizens, and workers; and engage in the hard work that learning requires*"[3]. It becomes important to build a honesty to students. Using contextual is not only about teaching mathematics, but how to make connection to student's mindset for thinking about the real world situations and what experience their learned. That mindset which is built on learning will increase their pleased to learn mathematics and get challenges to construct knowledge from outside. For final learning, the teacher can give students assignments which is related to contextual learning materials their daily in the neighborhood.

Gardner says that Interpersonal intelligence concerns to people's social interaction. Interaction will involve a lot of questions and statements from others who needs an honesty in the process[1]. It will develop the mindset and apply one's knowledge and attitudes, especially honesty. Vygotsky emphasize the gap between what is known and what is being studied as a Zone of Proximal Development (Zone of Proximal Development) and how the importance of social interaction is[7].

- CTL and Constructivism Theory

In principle, contextual learning helps a learning and degree of intelligence possessed by students for connection to build a new knowledge. Jean Piaget also called constructivism for his beliefs through a knowledge that one's knowledge is a continuous interaction patterns[4]. It certainly gives a lot of opportunities for students or someone to build character through learning honesty and mindset while learning contextual, so the expectation of interactions that becomes more harmonious and trustworthy.

- CTL and Active Learning Theory.

Chickering and Gamson suggest that to be active, the students have to do something more than just a listening. In active learning, student's activities is not only as a listener, but also do think and explore mathematical knowledge[5]. Mathematics learning involves about teachers as facilitator and students play an active role which will make learning about life and having fun. Students will be actively looking for new things and certainly more easily understand the material.

- Brain and Brain Research Results

Jensen, a neurologist, has shown that the necessary for connection in learning is in the basic physiological functions of the human's brain[6]. The brain's ability to capture a stimulus depends on how big the activation in responding. How fast response is and activate in learning can be mathematics learning expectations.

### III. CONCLUSION

The world of education gives a huge influence on the student's character, especially in mathematics education. In daily life, we use mathematics for interaction with others. Indeed, in that process should contain an honesty. In mathematics learning, teamwork which is one of interaction process is often called the cooperative learning, which can set up and train the student's character, especially the character of honesty.

Building a mathematical concept contains the coherent-well basic of ideas, rules and its development. Its goal is for changing student's mindset to think mathematically. It is same like contextual using, the contextual includes not only to teach mathematics but also how to connect students to think more about the world and learning through what they did by themselves. The interaction with others will involve a lot of questions and statements to do honesty in the process.

### REFERENCES

- [1] H. Gardner. Multiple intelligence. Batam: Interaksara, 2003.
- [2] T. A. Romberg. Problematic Features of the School Mathematics Curriculum, in J. Philip (Ed.). Handbook of Research on Curriculum. New York: A Project of the American Educational Research Association, 1992
- [3] R. G. Berns and P. M. Erickson, "Contextual Teaching and Learning: Preparing Students for the New Economy", The Highlight Zone: Research @ Work No. 5.2001. Retrieved June 8, 2007 from:<http://www.nccte.org/publications/infosynthesis/highlightzone/highlight05/highght05-CTL.pdf>
- [4] J. Piaget as cited in MP Driscoll. *Psychology of Learning for Instruction*, Needham Heights, MA: Allyn & Bacon, 2000.

- [5] A. W. Chickering and Z. F. Gamson. *Development and adaptations of the Seven Principles for Good Practice in Undergraduate Education*, John Wiley & Sons, 1999.
- [6] E. Jensen. *Teaching with the Brain in Mind*, Alexandria, VA: Association for Supervision and Curriculum Development, 1998.
- [7] L. S. Vygotsky. *Thought and Language*, Cambridge, MA: MIT Press, 1962.
- [8] Sumardiono. *Characteristics of Mathematics and Mathematics Education Implications*. Yogyakarta: MONE, 2004.