MOGE LEARNING MODEL TO IMPROVE CREATIVE THINKING SKILLS

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Abstract: Indonesian children must have 21st century skills that include critical thinking skills, creativity, collaboration and communication. The education system in Indonesia should be able to prepare learners to be able to compete at a high level that requires complex skills, expertise, and creativity. Game has been able to facilitate creativity through cognitive and affective processes in children. Game also gives children the opportunity to think creatively and solve problems. Therefore, educators must be able to improve students' creativity and imagination by using games in the classroom. Therefore, MOGE learning based on game has been developed to improve creative thinking skills in Indonesia. Suggestions for further research, the MOGE learning model developed is still theoretical, so it needs to be tested and implemented in the classroom.

Keywords: *creative thinking skills, game, imagination, MOGE learning model*

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A. INTRODUCTION

The 21st century skills that must be learned and mastered by human include: how thinking (including creative thinking and innovation, critical thinking and problem solving, thinking metacognition), how to work (including the ability to communicate and collaborate), the ability to use information and technology, and living in the world (social skills both locally and globally, the life and career, as well as personal and social responsibility as well to the culture) (Griffin, McGaw & Care, 2012). Skills required in the 21st century is a critical thinking skills, creative thinking skills and metacognition (Trilling and Fadel, 2009).

A study has shown that there has been a substantial change to an increase in jobs requiring high-level thinking skills that have been predicted to reach 65% in 2020 (Griffin & Care, 2012). Rapid changes have influenced forms of learning to produce graduates who will be able to work and be successful for the next few years (Trilling and Fadel, 2009). Therefore, the education system in Indonesia should be able to prepare learners to be able to compete at a high level that requires complex skills, expertise, and creativity. The education system in Indonesia should be able to prepare learners to be able to compete at a high level that requires complex skills, expertise, and creativity that there is currently no (Fadel and Trilling, 2009). Munandar (2003) has explained that

the maximal development of creative thinking ability is closely related to how to teach. The state of the atmosphere is non-authoritarian class has been able to make students able to put forward new ideas and promote creativity. Nugroho (2011) to have been able to bring creativity required freedom of thought. Freedom and comfort atmosphere has been able to make a person able to improvise or against the flow of habits.

Comfort and a pleasant atmosphere in the learning process could have been created by using approaches and learning model that can foster a sense of fun (Indriyati, 2012). To relieve the bored experienced by learners during the learning process has developed the concept of learning through play and the formation of small groups in the learning process. This has been done with reference to the nature of the child one of them is a game. The game is one way to do stimulus, where when children play they not only gain knowledge but also a pattern of thinking in issuing ideas. Play is necessary for creativity (Craft, 2003), the play has given the children to learn communication emotion, thought to be creative and solve problems. Based on the above, that creativity can be enhanced through play teaching. Chen Kuan Tsay (2012) in the research literature that has been argued that *educators should bring play and imagination in their classroom in order to encourage creativity*.

A creative thinking skill for students is important to be upgraded. Playing has been able to facilitate creativity through cognitive and affective processes in children. Playing also gives children the opportunity to think creatively and solve problems. Therefore, educators must be able to enhance students' creativity and imagination by using games in the classroom. Therefore, MOGE learning model based game has been developed to improve creative thinking skills in Indonesia.

B. DISCUSSION

1. Game

The game is a fun activity that is undertaken for the sake of the activity itself (Santrock, 2006). The game is a form of human self-adjustment which is very useful to help the child master the anxiety and conflict. Children have to use their minds when playing. While playing them one step abstract thinking, in the sense that they were freeing their thoughts of attachment to concrete objects. Playing is also associated with creativity, particularly the ability to be more flexible or flexible in thinking (Nur, 2004). Playing has given students the situations that are safe to express ideas and feelings that would not be acceptable in other situations. When playing they can freely

express feelings. The game can help children to cope with feelings and often also overcome those aspects of life that is rude.

The game can be challenging and fun to play, the game also could provide a learning experience that is diverse, Ege (2012), educational games have been able to make a topic to be challenging to learn, so participation and student's motivation is also increased and the impact on increasing their learning achievement. The game is a method that has been able to increase creativity and innovation (Lisa Kurt, Kurt William, & Medaille 2010), because it is through the children's game to be more creative and use his imagination (Tomlin, 2007). Magno (2009) has made it clear that creativity is the result of the imagination. Therefore Kuen Chen tsai (2012) advocated a teacher to be able to implement the game in the classroom.

The game has been facilitating creative performance of learners, which in turn can optimize their own learning (Kuen Chen Tsai, 2015). The game as a fun as far as playing can increase intrinsic motivation and direction (not just messing) (Kuan Chen Tsai 2015). Previous research has shown there is a close relationship between imagination and creativity, which game encourages the development of cognitive and affective processes necessary for creative performance.

2. Creativity Thinking Skills

The word creativity comes from the Latin is creo which in English is "to create, make", (Anoiko, 2011). Creativity refers to the phenomenon when a person creates something new (a product, a solution, and works of art) that has a value. Creativity is the ability to generate new ideas into existence through divergent thinking, or bring many solutions to solve a problem (Guilford, 1950). Creativity is defined as the process of becoming sensitive to problems, deficiencies, gaps in knowledge, missing elements, disharmony and others (Torrance, 1966). Creativity is a person's ability to solve problems, gaps in knowledge with a variety of solutions and produces a product that is new and useful or has value.

Creativity into three dimensions, namely: (1) fluency is the ability to generate ideas; (2) the flexibility of being able to see the questions or topics from a variety of perspectives; and (3) originality or authenticity is the essence of creativity (Guilford, 1950). Creativity into four dimensions (4P) i.e., the dimensions of the person, process, product, and press (Rhodes, 1961). The first creative dimension is Person. A creative has a personality that is significantly different from the people who are less creative. Creative people have characteristics as a creative person (Guilford,

1965). Based on the results of study, Barron (1999) describes the characteristics of creative individuals (1) sensitive in issues of a situation, (2) be able to meet its own needs, (3) does not depend on others, (4) able to control himself , (5) courage, (6) a lot of ideas.

The second dimension is the Process, according to Rothenberg (1976) is identical to the creative process of divergent thinking types who seek to see the various dimensions of diverse or even contrary to be some new thinking. Stages of the process of creative thinking by Wallas (1926) consist of four steps: (1) preparation, (2) Incubation, (3) Illumination, and (4) verification. John Dewey (1937) in the Nur (2014) simplifies the creative process that consists of two basic steps, namely: (1) a state of uncertainty "confusing", or problem situation, (2) an investigation that includes the acquisition of the relevant information that will lead to an effective solution. Learning model development has been referred to the integration of both the creative process of Wallas and Dewey, namely (1) the preparation, which in the process created a welter with the aim to encourage motivation and curiosity of students that require the student to put forward its ideas in solving these problems , (2) incubation, the process by which students bring their creative ideas to solve the problems given by the teacher, (3) illumination, the process by which students carry out investigations to prove their creative ideas that will lead to a solution that effectively and develop creative ideas in resolving a grievance with different conditions, (4) the verification, the process by which ideas are evaluated based on the concept and theory.

The third dimension is the product of creativity, Amabile (1983) has argued that a creative product or a person's response is said to be creative if in the judgment of the experts who have authority in the field said that it was creative. A product rated creative if it is new, unique, useful, true, is worth in terms of specific needs, shows the method they have never or rarely done by the previous person.

The fourth dimension is the Press; the environment is one of the factors that influence creativity. Rogers (1976) in the Nur (2014) presents three environmental conditions which support creative thinking, namely: (1) The openness to experience, creative environment that should motivate the abolition of boundaries and limits of the conventional. (2) The location of internal evaluation, creative environment is an environment that allows individuals to evaluate new ideas and or products themselves without criticism from outsiders. (3) The ability to play with the elements and concepts, facilitating the opportunity to explore issues of an issue in an environment with a strict set of rules that do not, is through fun games. McManus (1999) explains that the Games contribute to creative productivity if the game was to facilitate opportunities to increase the

complexity of consciousness or intrinsic motivation. Indicators creative thinking skills by Treffinger et al. (2002) are detailed in Table 2.1 below.

Table 1 Indicator of creativity thinking skills

Indicator	Descriptive of indicator
Fluency	1. Refers to quantity or the ability to generate a large number of ideas in response to an open-ended question or in reference to one's thinking process. 2. Fluency builds on the premise that quantity of idea generation can stimulate the production of ideas that will be both novel and useful. 3. Quantity provides opportunity for quality.
Flexibility	1. Refers to ability to shift the direction of one's thinking or to change one's point of view. 2. Flexibility involves an openness to examine ideas an experiences in unexpected or varied ways, and thereby, to discover surprising and promising possibilities.
Originality	1. Refers to the ability to generate new and unusual ideas. 2. Originality deals with generating options that are unusual or statically infrequent (i.e. ideas that few people in any group might offer.
Elaboration	1. Refers to the ability to add details and to expand ideas. 2. Elaboration involves making ideas richer, more interesting, or more complete.

3. MOGE Learning Model

The MOGE learning model is a learning model that has been developed with based games to increase creative thinking skills. According Jarome Bruner, creativity can be enhanced with the game, it is in line with the opinion of Kuan Chen Tsay (2012) in the research literature that suggests that educators should bring play and imagination in their classroom in order to encourage creativity. Furthermore, Vygotsky has made it clear that human creative behavior "made man into a creature that is oriented towards the future, creating the future and thus changes their own destiny". Empirically previous studies have shown that the game facilitates creativity through the process of cognitive and affective in children (Dansky & Silverman, 1973; Howard-Jones, Taylor, & Sutton, 2002; Moore & Russ, 2008; Russ & Schafer, 2006; Saracho, 1992). The main findings of previous studies are the game has been able to provide support for the empirical relationship between play and divergent thinking / creative thinking. Through a well-planned game, students will not only learn with enjoyment and problem-solving but also develop creative thinking and imaginative thinking (QCADEE, 2000). Furthermore Dansky (1999) defines play as a fun as far as playing can increase intrinsic motivation and direction (not just tinkering). The game as a creative activity that can be conceptualized as a medium that presents a curious (Cecil et al, 1985). The game has a close relationship with creativity and imagination, on the other hand also can improve student learning outcomes. Activities

play if it is designed to encourage the direct involvement in the physical experience of the individual, can help adult learners to broaden their perspectives and experiential learning (Freiler, 2008).

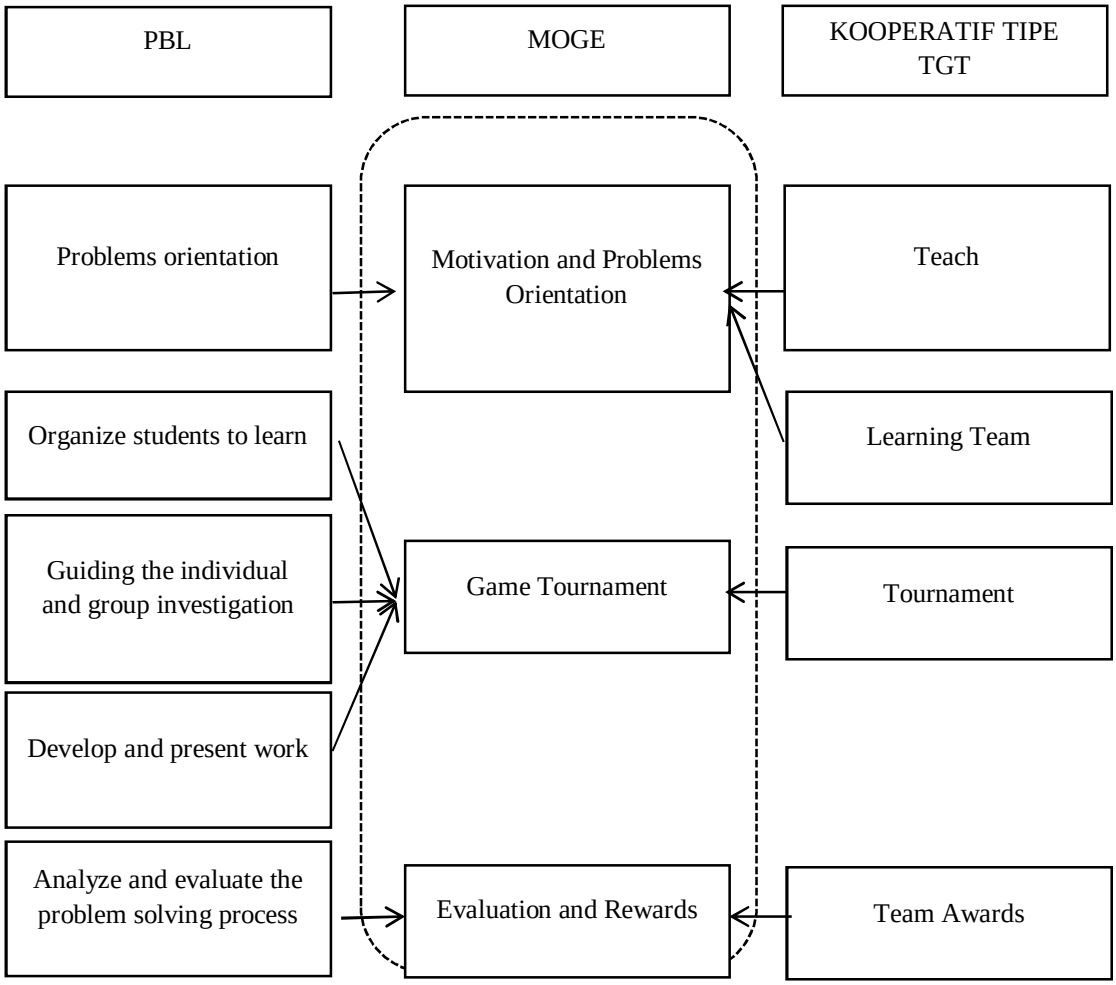

Figure 1. The syntax of the model of PBL, TGT-type cooperative, and MOGE

The MOGE learning model developed refers to the stages of the process of creative thinking by Wallas and John Dewey, namely: (1) preparation, which in the process created a welter with the aim to encourage motivation and curiosity of students that require the student to express his ideas in completing these problems. (2) incubation, the process by which students bring their creative ideas to solve the problems given by the teacher, (3) illumination, the process by which students carry out investigations to prove their creative ideas that will lead to a solution that effectively and develop creative ideas in resolving a grievance with different conditions, (4) the verification, the process by which ideas are evaluated based on the concept and theory. In addition to the above learning model developed is also supported by the theories of learning, namely constructivism socio-cognitive theories, behavioral theories of learning and motivation theories of learning. Rationality order of each phase of the MOGE learning model assessed based on the arguments of researchers, the study of theoretical and empirical studies. The main purpose of this model is to improve the

students' creative thinking skills. In this model the students are in demand actively and creatively bring their ideas to solve the problems given by the teacher through a tournament game.

The MOGE learning model was developed with reference to the weakness contained in the PBL model and Cooperative Model types TGT. Comparison between the model PBL syntax, the type cooperative model TGT and MOGE models shown in Figure 2. Figure 2 has shown that the novelty of the model developed syntax contained in tournament games. The syntax is implemented through teamwork and tournament competitive basis. The specificity of the syntax tournament games of MOGE model is to improve the skills of creative thinking, where the syntax is composed of three phases game students have to do that consists of a basic game, middle game, and the game continued. MOGE learning model is a model-based learning to develop the game to boost students' creative thinking skills. MOGE learning model was developed based on the theoretical and empirical studies and by studying the weaknesses in the model PBL and cooperative models TGT. Phase sequence in the learning model MOGE include, 1) Motivation and Problems Orientation, 2) Game tournament, 3) evaluation and rewards.

C. CONCLUSION

Game has been able to facilitate creativity through cognitive and affective processes in children. Game also gives children the opportunity to think creatively and solve problems. Therefore, educators must be able to improve students' creativity and imagination by using games in the classroom. MOGE learning model is designed based on game has been developed to improve creative thinking skills in Indonesia. Suggestions for further research, the MOGE learning model developed is still theoretical, so it needs to be tested and implemented in the classroom.

REFERENCES

Anoiko. (2011). *Creativity. online*: tersedia: https://oiko.files.wordpress.com /2011/03/2011_wiki_anoiko_creativity1.pdf. Diakses: 15 September 2015.

Barron, F. (1999). *Creative person & creative pocess*. Durham: Duke University Press.

Cecil, L. M., Gray, M. M., Thornburg, K. R., & Ispa, J. (1985). Curiosity-exploration-play-creativity*: The early chilhood mosaic. Early Child Development and Care, 19(3), 199-217.*

Craft. (2003). Creative thinking in the early years of education. Early Years: *Journal of international research & development, 23, 143-154.*

Dansky, J.L. (1999). *Play. in m. a. runco & s. r pritzker (eds), encyclopedia of creativity (pp. 393-408)*. San Diego, CA: Academic Press.

Indriati S.C.P. (2012). *Meningkatkan Hasil Belajar IPA Konsep Cahaya Melalui Pembelajaran Science-Edutainment Berbantuan Media Animasi*. Jurnal Pendidikan IPA Indonesia. JPII(2) (2012) 192-197.

Donald J. Treffinger, D.J., grover C. Young, edwin C. Selby, cindy shepardson, center for creative learning, sarasota. (2002). *Assesing creativity*: a guide for educators. Florida: NRC/GT.

Freiler, T. J. (2008). *Learning through the body*. New Directions for Adult and Counting Education, 119, 37-47.

Guilford, J.P. (1950). *Creativity. American Psychologist*, 5, 444-454.

Griffin, P., McGaw, B., & Care, E. (Eds.). 2012. *Assessment and teaching of 21st skills*. New York: Springer Publishing Company.

Jona K. Anderson-McNamee. (tt). *The importance of play in early chilhood development*. Montana State University Extention. www.msuextension. Org.

Kuen Chen Tsai. 2012. Play, imagination, and creativity: a brief literature review. *Journal of education and learning vol.1, no.2. published by canadian center of science and education.*

Kuen Chen Tsai. 2015. All wwork and no play makes an adult a dull learner. *Journal of education and training. Vol. 2 No. 1.*

Lisa Kurt, William Kurt, & Ann Medaille. (2010). The power of play: fostering creativity and innovation in libraries. *Journal of library innovation. vol. 1 no. 1.*

Magno, C. (2009). Explaining the creative mind. *International journal of research and review, 3, 10-19.*

Nur, M. 2004. *Perkembangan selama masa anak-anak. edisi 2*. Surabaya: Pusat Sains dan Matematika Sekolah (PSMS) Universitas Negeri Surabaya.

Naim Uzum. (2012). A sample of active learning application in science education: the thema “cell” with educational games. *Procedia-social and behavioral sciences 46 (2012) 2932-2936. published by elsevier ltd.*

Nugroho, S. (2011). *Pengaruh kemampuan berpikir kreatif terhadap prestasi belajar siswa pada mata pelajaran MTK kelas VIII di MTs negeri Babakan Ciwaringin Cirebon*. Skripsi tidak dipublikasikan.

Qualifications and Curriculum Authority/Department for Education and Employment. (2000). *Curriculum guidance for the foundation stage.* London, UK: DFEE/QCA.

Rhodes, M. (1961). *An analysis of creativity,* Phi Dhelta Kappa.

Rothenberg, A & C. R. Hausman (eds). (1976). *The creativity question*. Durham: Duke University Press.

Santrock. (2006). *Life span development: Perkembangan masa hidup*. Jakarta: PT. Erlangga.

S.C. Utami Munandar. (1987). *Pemanduan anak berbakat suatu studi penjajakan*. Jakarta: PT. Rajawali.

Smaldino, dkk. (2011). *Instructional technology & media for learning*. Kencana prenada Media Group. Jakarta.

Torrance, E.P. (1966). *The torrance test of creative thinking-technical manual Research edition-verbal test*. Form A and B-Figural Tests, Form A and B.

Tomlin. (2007). *Play: a historical review.* Earlychildhood News. http://www. Earlychildhoodnews.com/earlychildhood/article_print.a.

Trillig, B., & Fadel, C. (2009). 21st Century skills: *Learning for life in our times*. San Fransisco: Jossey-Bass.

Veloo, A., Sitie Chairhany. (2013). Fostering students’ attitudes and achievement in probability using teams-games-tournament. *Science direct. Pocedia-Social and Behavioral Sciences 93 (2013) 59-64. Published by Elseivier.*

Vygotsky. (1930/2004). Imagination and creativity in childhood. *Journal of rusian and east european psychology, 42, 7-97.*

Wallas, G. (1926). *The art of thought*. New York: Harcourt Brace Jovanovich.