Influence of CTLModelby Using Monopoly Game Media to The Students' Motivation and Science Learning Outcomes

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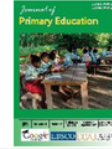
Influence of CTL Model by Using Monopoly Game Media to The Students' Motivation and Science Learning Outcomes

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Article Info

Abstract

The backround of research is still textual learning and limited learning media in Karanganyar Elementary School that affected to students learning outcomes. The aim of the study is to know the influence of CTL by using Monopoly game to the motivation and the science learning outcome. This study uses Quasy Experimental Research with pretest-posttest control group design. Data of the research was conducted by using multiple choice test and Questionnaire. The Data was analyzed by using descriptive analyzing, gain score and t-test. The result showed that : (1) there is the difference between the students' learning outcomes in the teaching learning process through CTL by using Monopoly media and the students' learning outcomes in the teaching learning process without Monopoly Media (N-Gain = 0,71); (2) there is the difference between the students' learning outcomes in the teaching learning process through CTL by using Monopoly media and the students' learning outcomes in the teaching learning process through CTL without Monopoly Media ($t_{count} = 7,876 > t_{table\ (2,042)}$), and The students' learning motivation improvement of experimental class is higher than the control class, before treatment it was 51%, and after treatment it was 86%. (3) the result of Multiple linear regression test in the students' science learning outcomes Colum was 0,000 and the students' learning motivation Colum was 0,000. This significant result is lower than The significant 0, 05. It showed that there is effect of CTL Method by using Monopoly game media to the students' motivation and Science learning outcomes.

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INTRODUCTION

The Science and technology development leads human to more advanced and open minded. The Science and technology development especially in the education field is by creating learning activity which is meaningful for the students, so that they have extensive knowledge, good attitude, and life skill. Improvement of learning in the class must be paid attention by all circles (government, education, and community) both in term of learning instrument, model, and media in order to the students can achieve the comprehension in the curriculum which is applied, which is curriculum 2013.

One of the learning content in the curriculum 2013 is Science. Science emphasizes approach to process skill, so the students find out the facts , build the concepts, theories, and their own Scientific attitude which is finally give positive influence to the quality of educational process, and educational product as well (Trianto, 2011). But the implementation of Science learning at school is just guided by the book have been there, Textual learning is influenced to the students' learning motivation improvement so the students' test result shows the learning outcomes is poor.

Both The national and international students' achievement has not pleased yet. From daily test value to school examination value, the average of the value often is under the minimal standard of mastery learning.

PISA test result in 2012, Indonesia was on the bottom rank, on 64th rank of 65 countries. The quality of education depends on learning science result at every level. The science learning process is not maximal so Indonesia was on bottom rank.

The interview with the fourth grade teacher in Elementary school in Karanganyar Demak showed that their learning is still textual learning. Their ability is limited in making the learning media. The learning media they gave has not contextual yet, so mastery concept they taught can't be accepted well by the students. It is affected to the students' interest in the following learning process, and there is not motivation in their own selves to comprehend what their teacher taught, so it influences to their learning outcomes. It can be seen from their Classical completeness in semester test 1 of the fourth grade students in science in the table 1.

Table 1. The Classical Completeness of The Fourth Grade Students' Science Learning Outcomes in The First Semester Test

School	Classical completeness (%)
SDN Karanganyar 1	26,67
SDN Karanganyar 2 (IVa)	23,08
SDN Karanganyar 2 (IVb)	24,53
SDN Ngaluran 1	44,00
SDN Ngaluran 3	54,17
SDN Kedungwaru Lor	40,74

Table 1 show that the Classical completeness of the fourth grade students' learning outcomes is still poor. it shows that more than 70% of the students' learning outcomes of SDN Karanganyar 1 and SD Kranganyar 2 have not been complete, more than 50% of the students' learning outcomes of SD Ngaluran 1 and SD Kedungwaru Lor have not been complete, less than 50% of the students' learning outcomes of SD Ngaluran 3 have not been complete with Minimal mastery criteria (KKM) is 70.

The fact has been explained, indicates that to build the meaningful learning, we need the role of skilled teacher in designing interactive learning.The intellectual ability of the elementary students is still on the operational concrete level (7-11years). So, learning is done with introducing the concrete objects and events which are there in their environment.

CTL is one of learning model which gives the students chance to get knowledge, experience finding, asking, discussing in group, and presentation, so the students' learning motivation and learning outcomes increase. CTL helps the teacher to contextualize the material, build the small groups, and build good relationship with the students in the class Suprijono (2009). Contextual learning can construct students' knowledge and skill with dynamic class.

Haryoto and Narimo's experiment (2013) stated that CTL can give motivation to the students through learning material relates the students' experience in their daily life which leads to real learning. Furthermore Erlisnawati (2013) stated that the implementation of CTL Model can increase significantly the students' learning outcomes compared with the conventional learning. Therefore, Learning uses CTL model Emphasizes on the context which corresponds to the student learning environment, leads to the meaningful learning and influential to the students' motivation and Science learning outcomes

Making game media is another alternative to solve the problem; it can be done in accordance with the concrete operational stage. Media takes important role as intermediary to make teaching learning process easy, in order to make communication between teacher and students effective. The advantage of using Media in the Teaching learning, especially for Elementary school level is very important because at this time The students still think concretely, they have not been able to think abstractly completely. (Djamarah & Zain, 2010). The presence of media is helpful in understanding certain concepts, which are not or less able to be explained by language.

Media or learning device can helps the teacher to transfer their knowledge in an impressive way and effective design learning more effectively (Naz & Akbar, 2010). Monopoly game media is one of the games media which can improve the quality of learning process. This Monopoly game media contains exercises to hones the students' abilities when a game is in progress. The function of monopoly game is as learning media for the students in learning science when a game is in progress. Monopoly is designed and modified by using picture based on core competence (KI) and basic competence (KD).

Vikagustanti's experiment, et al (2014) explains that Monopoly game media can train the students' memory in the Mastery of material concepts, train and motivate the students' courage to express their arguments, and practice

in mastering and understanding the material concepts. Azizah's experiment (2013) concludes that the implementation of monopoly media has been effective and can increase the students' learning outcomes, especially in the science learning. Therefore, the monopoly game media is as CTL mediator which leads in the mastering material. And later it gives influence to the students' motivation and science learning outcomes.

Some considerations have been explained and the research result of researchers, so the objective of the research is to find the influence CTL Model by using Monopoly game media to the students' motivation and science learning outcome.

METHODS

This study used Quasy Experimental Research with pretest-posttest group design. Technique of the research used test and no test. The test technique is done with multiple choice test questions. No test technique used questioner and Documentation. Questioner was used for collecting data of the Students' learning motivation score. Data analysis of the study is Descriptive Quantitative Analysis. Method of Data analysis to analyze the students' learning motivation score is Percentage Descriptive. While to analyze the result ability of students' science learning outcomes is Gain score test, t-test and multiple linear regressions test.

RESULTS AND DISCUSSION

Overall the students' learning motivation in experimental class was developed but the students' learning motivation in control class was less developed. Thursan (2012) stated that the Motivation is the main factor that determines the one's learning achievement, more than that the motivation is the main motor drive that determines the students' achievement in their life. The students' learning motivation consists of some sub variables; they are Attention, Relevance, Confidence, and satisfaction. The average of The Students' motivation in Learning

Science before and after using Contextual Teaching Learning through Monopoly game media and without Media showed in the table 2.

Table 2. The Average of The Students' Motivation in Learning Science

Data	Class	Average	Note
Pre	E	52	Poor
	K	51	Poor
Post	E	69	Adequate
	K	86	Very good

From the table 2, it can be seen that the average of students' learning motivation in control class before treatment was 52%, it was poor. The average of students' learning motivation in control class after treatment was 69% it was adequate. The students' learning motivation is increasing before and after treatment. But it is not significant improvement because the students in control class used CTL without Media.

From the table, it can be seen that the average of the students' learning motivation in experimental class before treatment was 51%, it was poor. The average of the students' learning motivation in experimental class after treatment was 86%, it was Very good. There is significant improvement of the students' learning motivation in Experimental class before and after treatment, because they had used CTL with monopoly media.

The improvement of the students' learning motivation is proved by Barkoukis & Hagger's experiment (2013) indicates that Contextual Teaching Learning can improve the students' motivation and activities in the teaching learning process. It's supported by Susanto's, et al., experiment (2012) found that Teaching Learning process by using Monopoly media is more effective than the conventional Teaching learning method. Since by using Monopoly as Teaching learning media, the students be more active in teaching learning process, beside that in the beginning The teaching learning process is centered to the teacher, now by using monopoly as teaching learning media it is centered to the students.

Data of the students' science learning outcomes is gotten by pre and post test. The pretest and posttest score of the students in Experimental class and Control class can be seen in table 3

Table 3. The Pretest and Posttest Score of The Students in Experimental Class and Control Class

| Data	Class	Average	±sd	Note	N-gain
Pre	E	55,75	10,68	C	-
Test	K	56,25	8,29	C	-
Post	E	87,25	6,57	B	0,71
Test	K	69,50	6,18	C	0,30

From the table can be seen that the average of the students' Pretest score in the experimental class was 55, 75 while the students' in control class was 56,25 which both of them were Adequate. The posttest score was increasing, the average of the students' score in experimental class was 87, 25 while the students in control class was 69, 50. The average of the students' score in experimental class was higher than the students' in control class. The experimental class got the higher score because they used CTL through Monopoly media.
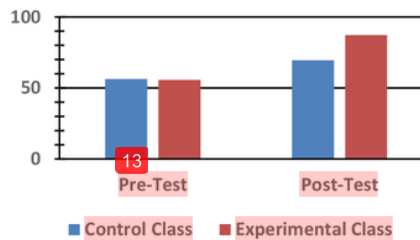
Graphic 1. The Pretest and Posttest Score of The Students in Experimental Class and Control Class.

Before the treatment given the students' science learning outcomes in both classes were in adequate category. After the treatment given the students' science learning outcomes level in the experimental class was in Good category, while in control class stayed in adequate category.

The result of N-Gain in Experimental class was 0,71, it's in High Category. N-Gain in control class is 0,30, it's in Poor Category. From the result of gain test, we can see that there is the difference between the experimental class and control class. So that we can conclude that the teaching learning process in experimental class is better than in control class. Next To prove the hypothesis we use t-test.
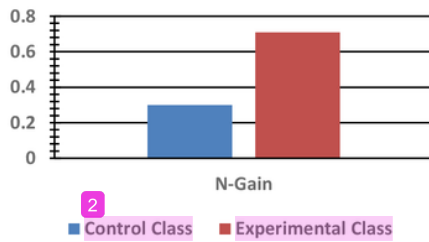
Graphic 2. The N-Gain of Posttest Score of Students in Experimental Class and Control Class.

From the count result of t-test, we can see that 7,876 > 2,042 or $t_{value} > t_{table}$ and 0,000 < 0,05 or significant value < 0,05. The conclusion of the research is there is difference of The students' science learning outcomes between the students who used CTL Model through Monopoly media and who used CTL Model without Media.

The improvement of the students' learning outcomes is proved by Arvaja's Experiment (2007) describes that Contextual teaching learning can improve the small discussion groups' learning outcomes. Beside that Bryant, et al. (2004) states that playing monopoly games based on problem is avowed as the active and effective teaching learning tool to improve the students' involvement in learning process and to improve the learning outcomes.

The result of multiple linear regressions in the column of the students' science learning outcomes was 0,000 and in the column of the students' learning motivation was 0,000. It shows that there is the influence of CTL model through Monopoly media to the students' motivation and science learning outcome.

CTL Model gave influence 77,9 to the students' learning motivation, and 76,0 to the students' science learning outcomes. While CTL Model through Monopoly media gave influence 78,2 to the students' learning motivation and 76,4 to the students' science learning outcomes.

It is appropriate with Onasanya's experiment (2004) which states that Media is effective in boosting and facilitating the students study. The using of teaching learning media in the teaching practice can make instructions be more attractive and fun. So in other words the teaching learning process by using media gives more influence than the teaching learning process without media. So, It can be concluded that CTL Model through Monopoly media give influence to the fourth grade students' motivation and science learning outcome.

CONCLUSION

The result of the study describes that (1) The Result of the students' sciece leaning outcomes is increasing by using CTL model through Monopoly media. N-gain in the experimental class in the beginning the result of the students' science learning is in poor category be high category. The result of T-test shows that there is difference of the students' science learning outcomes between the students who used CTL Model through Monopoly media and who used CTL Model without Media. (2) The students' learning motivation in experimental class is increasing from Poor Category be Very Good. (3) The analysis result of multiple linear regression shows that CTL model through monopoly media gives influence to The fourth grade students' learning motivation and science learning outcomes in elementary school.

Based on the above conclusions, the advice provided is for teachers who want to improve motivation and student learning outcomes this research model can also be used on other subjects, if material in the study developed in accordance with the facts.

REFERENCES

Arvaja, M. 2007. Contextual Perspective in Analysing Collaborative Knowledge Construction of Two Small Groups in Web-based Discussion. *International Society of the Learning Sciences*. 2(1): 133-158.

Azizah, N. 2013. The application of Media Monopoly to enhance the Learning Outcomes of Students in Science Subjects in Elementary School. *JPGSD*. 1(2): 1-12.

Barkoukis, S. & Hagger, M.S. 2013 The Trans-Contextual Model: Perceived Learning and Performance Motivational Climates as Analogues of Perceived Autonomy Support. *Eur J Psychol Educ*. 2(8): 353-372.

Bryant, L., Eves, C., Blake, A., & Palmer, P. 2014. Can Playing Monopoly™ Enhance Learning for Property Students. *Queensland University of Technology*. 1(1): 1-8.

Djamarah, S.B & Zain, A. 2010. Teaching and Learning Strategies. Jakarta: PT Rineka Cipta.

Erlisnawati, Munjiatun, & Fitri H. 2013. Influence Model of Contextual Teaching and Learning (CTL) against Increased Results Learn IPA Grade V SD Negeri 99 Pekanbaru. *Jurnal Primary*. 2(2): 1-9.

Haryoto, S & Narimo, S. 2013. Contextual Math Learning Based on Lesson Study Can Increase Study Communication. *International Journal* of 5476 2013. 5(4): 48-60.

Naz, A.A. & Akbar, R.A. 2010. Use of Media for Effective Intruction its Importance: Smoe Consideration. *Journal of Elementary Education a Publication of Deptt*. 18(1-2): 35-40.

Onasanya, S.A. 2004. Selection and Utilization of Instructional Media for Effective Practice Teaching. *Institute Journal of Studies in Education*. 2(1): 127-133.

Suprijono, A. 2009. *Cooperative Learning Theory and Applications PAIKEM*. Yogyakarta: Pustaka Belajar.

Susanto, A., Raharjo, & Prastiwi, M.S. &. 2012. The Game Monopoly as a Medium of Learning Material Sub Cells at High School Students of Class XI IPA. Universitas Negeri Surabaya. *E-Journal UNESA*. 1(1): 1-6.

Thursan. 2012. *Learn Effectively*. Jakarta: Pustaka Pembangunan Swadaya Nusantara.

Trianto. 2011. *Integrated Learning Model*. Jakarta : Bumi Aksara.

Vikagustanti, D.A., Sudarmin, & Pamelasari, S.D. 2014. Learning Media Development Organization Life Theme IPA Monopoly as a Learning Resource for Students of Junior High School. *Unnes Science Education Journal*. 3(2): 468-475.

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